

TABLE TYPE, ELECTRIC

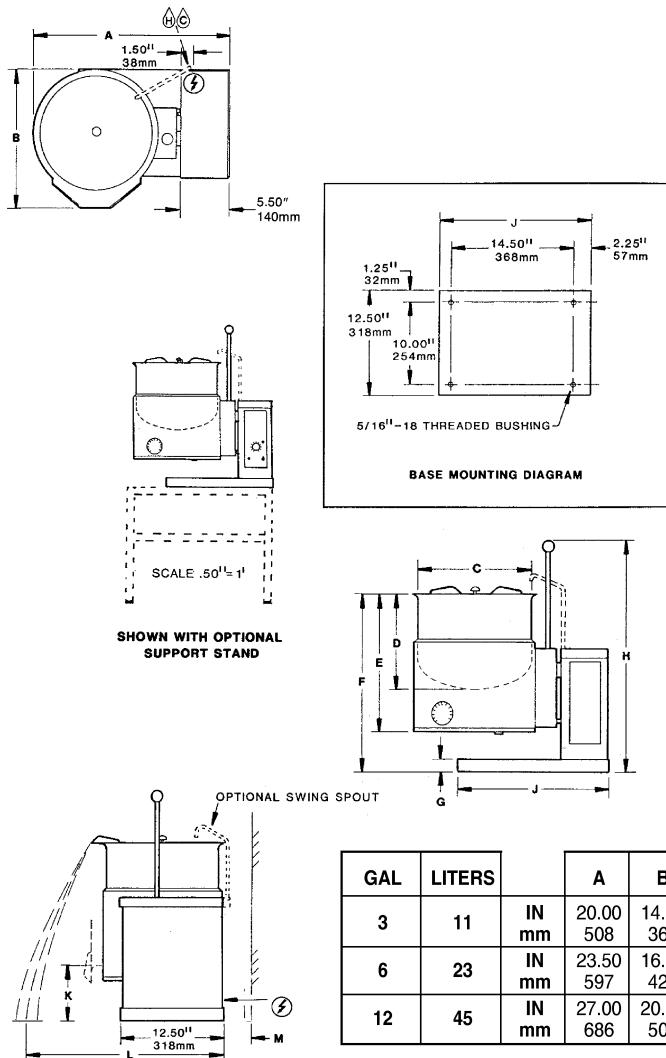
SELF-CONTAINED

3, 6 or 12 GALLONS

(11, 23 or 45 LITERS)

2/3 STEAM JACKETED, TILTING

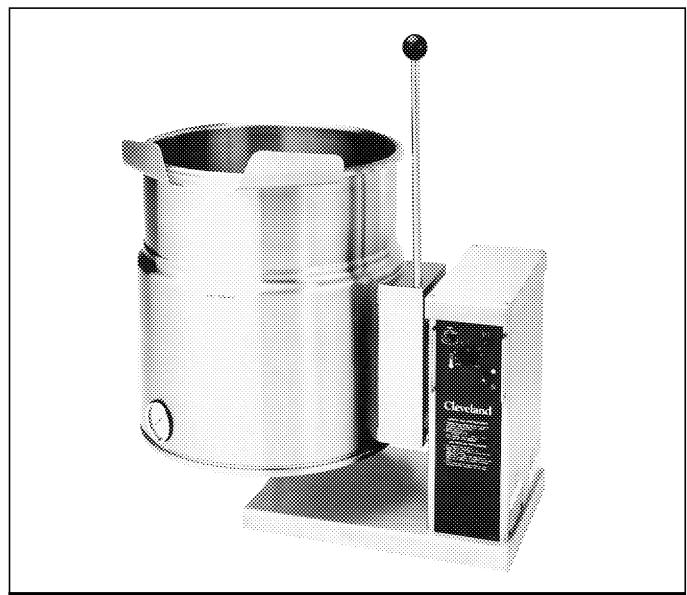
"SPLASH PROOF SERIES"



MODELS: KET- 3-T KET-12-T
 KET- 6-T

ITEM NUMBER _____

JOB NAME / NUMBER _____



SHORT FORM SPECIFICATION

Shall be CLEVELAND, electric kettle, Table Type, self-contained, tilting, Model KET - - T, gallons, KW, volt, Hz, - phase, 3 wire and single phase, 2 wire. 2/3 steam jacketed, type 304 Stainless Steel kettle and supports. Jacket rated at 50 psi with Safety Valve. Complete with solid state water level, temperature and safety low water power cut-off, including LED indicators. Lift-off cover, Marine Lock.

GAL	LITERS	A	B	C	D	E	F	G	H	J	K	L	M	N
3	11	IN mm	20.00 368	14.50 254	10.00 229	9.00 362	14.25 508	20.00 38	1.50 718	28.25 457	18.00 216	8.50 610	24.00 57	2.25 343
6	23	IN mm	23.50 597	16.75 425	13.38 340	11.00 279	16.50 419	22.75 578	1.50 38	28.50 724	18.00 457	6.94 176	26.50 673	2.75 70
12	45	IN mm	27.00 686	20.00 508	16.75 425	13.50 343	18.56 471	24.25 616	1.50 38	31.50 800	18.00 457	6.56 167	27.00 686	5.50 140

ELECTRIC 										WATER 				CLEARANCE			
DUAL VOLTAGE OF 220 / 380 (SHOWN ON CHART) REQUIRE A FOUR WIRE, THREE PHASE ELECTRICAL SUPPLY.																	
ELECTRICAL SUPPLY STANDARD WATTAGE										HIGH WATTAGE							
CAPACITY	208 VOLTS		240 VOLTS		480 VOLTS		220/380 VOLTS		208 VOLTS		240 VOLTS						
GAL. LITERS	KW	1PH	AMS 3PH	KW	AMPS 1PH	AMPS 3PH	KW	AMPS 1PH	AMPS 3PH	KW	PH	AMPS PER LINE	KW	PH	AMPS PER LINE		
3 11	4.1	19.7	N/A	5.5	20.7	N/A	5.5	11.4	N/A	N/A	N/A	N/A	—	—	—	—	
6 23	6.2	29.6	17.1	8.2	34.0	19.7	9.8	20.5	11.8	6.8	N/A	10.3	9.8	3	27.3	13.0	
12 45	9.8	47.3	27.3	13.0	54.5	31.5	13.1	27.3	15.8	10.9	N/A	16.5	12.3	3	34.2	16.4	

Cleveland Range reserves right of design improvement or modification, as warranted.

Cleveland Range Inc.

Ph: 1-216-481-4900 Fx: 1-216-481-3782

1333 East 179th St., Cleveland, Ohio, U.S.A. 44110

Visit our Web Site at www.clevelandrange.com



Steam Jacketed Kettles

TABLE TYPE, ELECTRIC

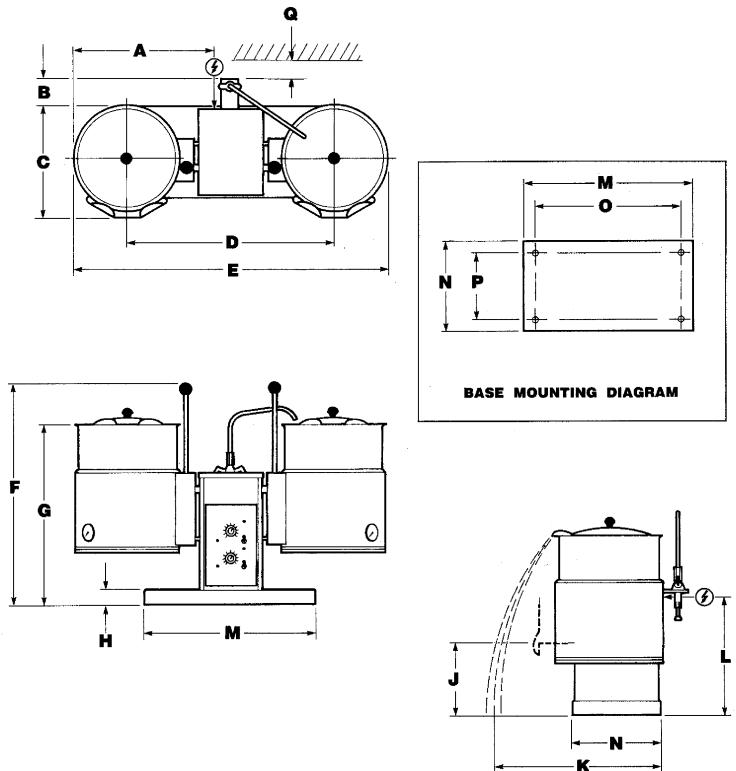
SELF-CONTAINED

TWIN: 3, 6 or 12 GALLONS

(11, 23 OR 45 LITERS)

1/3 STEAM JACKETED, TILTING

"SPLASH PROOF SERIES"



MODELS: TKET-3-T TKET-12-T
 TKET-6-T

ITEM NUMBER _____

JOB NAME / NUMBER _____



Shown with optional
Lift-Off Covers

SHORT FORM SPECIFICATION

Shall be CLEVELAND, electric twin kettles, Table Type, self-contained, tilting, Model TKET - ____ - T, ____ gallons each, ____ KW, ____ volts, ____ Hz, 3phase/3 wire or single phase/2 wire; with Solid State Controls for temperature ($\pm 1^\circ C$) and Low Water Safety, Large Pouring Lips, Recessed Pressure/Vacuum Gauges, permanently filled Steam Jackets, 50 psi Steam Jacket Ratings and Safety Valves, Lift-Off Covers.

MODEL NO.	GALS.	LITERS	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	
TKET- 3-T	3	11	IN mm	15.75 400	4.38 110	14.00 355	21.00 533	34.50 875	22.63 575	20.00 510	1.50 38	8.25 210	24.00 610	13.75 350	18.00 455	12.50 320	14.50 370	10.00 255	2.25 57
TKET- 6-T	6	23	IN mm	20.75 525	4.38 110	16.75 425	30.00 760	44.00 1120	28.75 730	22.75 580	1.50 38	7.00 180	26.50 675	13.75 350	24.00 610	12.50 320	14.50 370	10.00 255	2.75 70
TKET-12-T	12	45	IN mm	24.25 615	4.38 110	19.50 495	33.00 840	50.63 1285	31.50 800	24.25 615	1.50 38	6.25 160	27.00 685	14.75 375	30.00 762	12.50 320	14.50 370	10.00 255	5.50 140

ELECTRIC																		WATER			CLEARANCE				
		ELECTRICAL SUPPLY IN STANDARD WATTAGE (S)* or HIGH WATTAGE (H)*																1/2" O.D. copper tube.			RIGHT = 0" LEFT = 0" REAR = See "Q" on chart above				
		208 VOLTS				240 VOLTS				220/380 VOLTS				240/415 VOLTS				480 VOLTS		575 VOLTS					
CAPACITY	GALS. LITERS	*	KW	PH.	AMPS PER PH.	*	KW	PH.	AMPS PER PH.	*	KW	PH.	AMPS PER PH.	*	KW	PH.	AMPS PER PH.	*	KW	PH.	AMPS PER PH.	*	KW	PH.	AMPS PER PH.
3 11	S 8.2 1 39.5	S 10.9 1 45.4	S 9.1 1 41.3	S 10.9 1 45.4	-	N/A	N/A	N/A	-	N/A	N/A	N/A	-	N/A	N/A	N/A	-	N/A	N/A	N/A	-	N/A	N/A	N/A	
6 23	S 12.4 1 59.2	S 16.4 1 68.0	S 13.6 3Y 20.6	S 16.4 3Y 22.8	S 19.6 1 41.0	S 12.0 3 20.8																			
	S 12.4 3 34.6	S 16.4 3 39.4	H 21.8 3Y 33.0	H 26.0 3Y 36.4	S 19.6 3 23.6																				
	H 19.6 3 54.6	H 26.0 3 63.0																							
12 45	S 19.6 1 94.6	S 26.0 1 109.0	S 21.8 3Y 33.0	S 26.0 3Y 36.4	S 26.2 1 54.6	S 24.0 3 41.8																			
	S 19.6 3 54.6	S 26.0 3 63.0	H 27.2 3Y 41.4	H 32.8 3Y 45.4	S 26.2 3 31.6																				
	H 24.6 3 68.4	H 32.8 3 78.8																							

Cleveland Range reserves right of design improvement or modification, as warranted.

Cleveland Range Inc.

Ph: 1-216-481-4900 Fx: 1-216-481-3782

1333 East 179th St., Cleveland, Ohio, U.S.A. 44110

Visit our Web Site at www.clevelandrange.com

CLEVELAND RANGE KET-T SEQUENCE OF OPERATIONS

1. To turn the unit on, turn the switch to the on position.
 - Power is sent to primary side of the 120vac/16vac transformer.
 - Power is sent to the normally closed high limit.
 - From the high limit power is sent to the normally open contacts of the 12VDC relay.
2. From the secondary of the transformer 16VAC is sent to the controller.
 - Power is sent to the red LED (low water indicator light) from terminal 4 of the controller.
 - If the water probe is grounded through water the LED will go off.
 - If the water probe is not grounded the LED will remain on and the unit will not heat.
 - If the resistance of the thermistor is higher than the setting of the potentiometer(the unit is calling for heat) then 16VDC is sent to the coil of the relay and the green LED (heat indicator light)
 - The 12VDC relay will close until the unit reaches temperature
3. With the contacts of the relay closed, power is sent to the coil of the contactor(s).
 - The contactor(s) close sending the supply voltage to the element(s).
 - The elements will heat causing the water to boil and steam to be generated.
4. The kettle will heat (build pressure) until the controller is satisfied by the thermistor at the setting of the potentiometer.
 - The controller will then turn off the heat circuit until the temperature of the kettle is below the setting.
 - When the temperature drops below the setting the controller will send 12 VDC to the relay and the heat circuit will be energized again.
5. To turn the unit off, place the switch in the off position.
 - Power will be removed from the controller and the heat circuit will de-energize.

OPERATION OF A SOLID STATE KETTLE

The main difference between a solid state kettle and a conventional kettle is that the solid state kettle uses an electronic thermistor to sense kettle temperature while the conventional kettle uses a mechanical thermostat.

A thermistor is a semiconductor that changes resistance as the temperature changes. As the temperature increases the resistance of the thermistor decreases.

Note the thermistor and the temperature adjusting potentiometer. The resistance of the potentiometer (variable resistor) will determine the desired kettle temperature. In the next few paragraphs, the simplified happenings of the temperature control circuit inside the control box with respect to the thermistor and temperature adjusting potentiometer will be explained.

When the kettle has not reached its desired temperature, the thermistor resistance will be greater than the potentiometer resistance. This will give an output from the temperature control circuit of an electronic "HI", which simplified equals a closed switch. As the temperature increases, the thermistor resistance will decrease until it equals the potentiometer resistance. At this point, the output of the temperature control circuit will be on electronic "LO", which simplified equals an open switch.

When power first arrives at the kettle, it passes through the terminal block to one side of the contactors and the 16-volt AC transformer. With the on/off switch in the "on" position, 16 volts AC is provided to the control box at pins 9 and 10. The box converts this to DC and provides 16 volts DC to one side of the 12-volt relay coil.

If the low water cut-off probe is grounded, (submerged in water) it will provide an electronic closed switch inside the control box. If the kettle has not reached its desired temperature (thermistor resistance greater than potentiometer resistance), there will be an electronic closed switch inside the control box to allow current to flow from pin 8 through the 12 volt relay coil and back to pin 6. This will, in turn close the 12-volt relay contacts.

(2)

With the 12-volt relay closed, this now provides power to the contactor coils, therefore closing the contactors.

With the contactors closed, this now provides power to the elements, thus heating up the kettle.

As the temperature of the kettle increases, the thermistor resistance will decrease until it equals the potentiometer resistance. The temperature control circuit will then provide an open electronic switch, removing the closed circuit to the 12-volt relay coil. This will open the relay contacts, therefore opening the contactors and removing power from the elements.

This cycle will repeat itself as required by the kettle temperature.

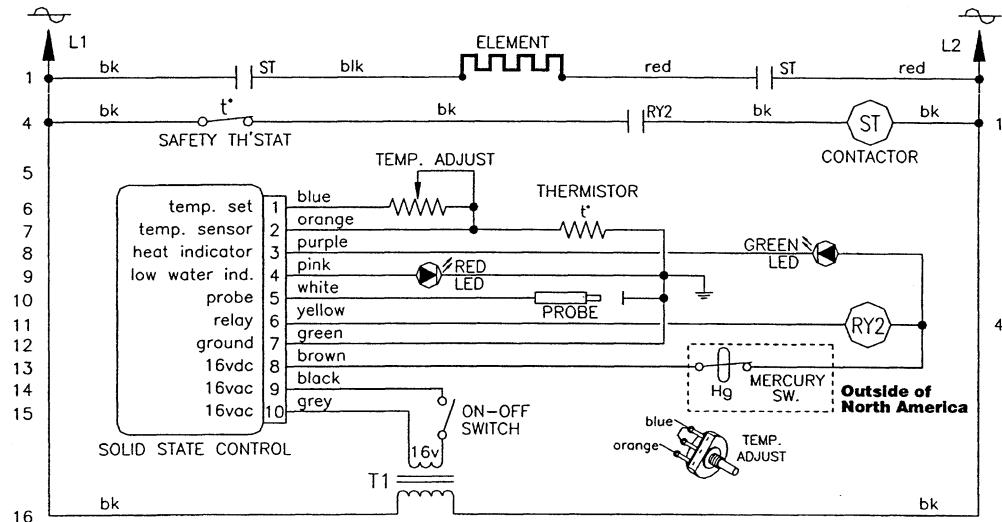
One important point to remember when troubleshooting; if there is no power going into the control box, there can't possibly be power coming out of the control box. Also, if you have the required power coming out of the control box and the kettle still does not operate, the problem is not the control box, but after it in the circuit.

WIRING DIAGRAM

3 Gallon Kettles

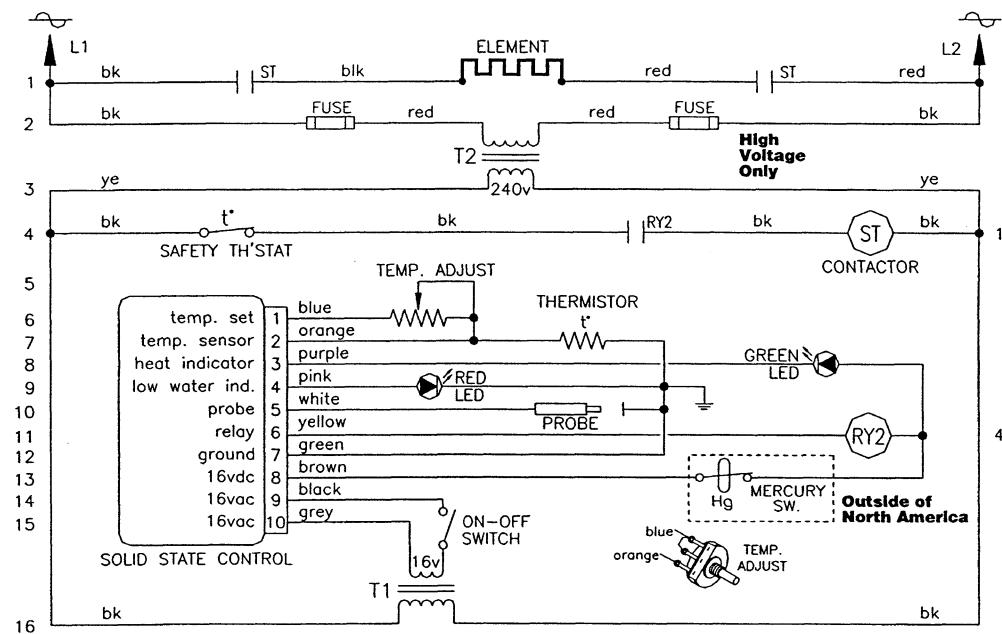
200-240V

Single Phase Only



380-480V

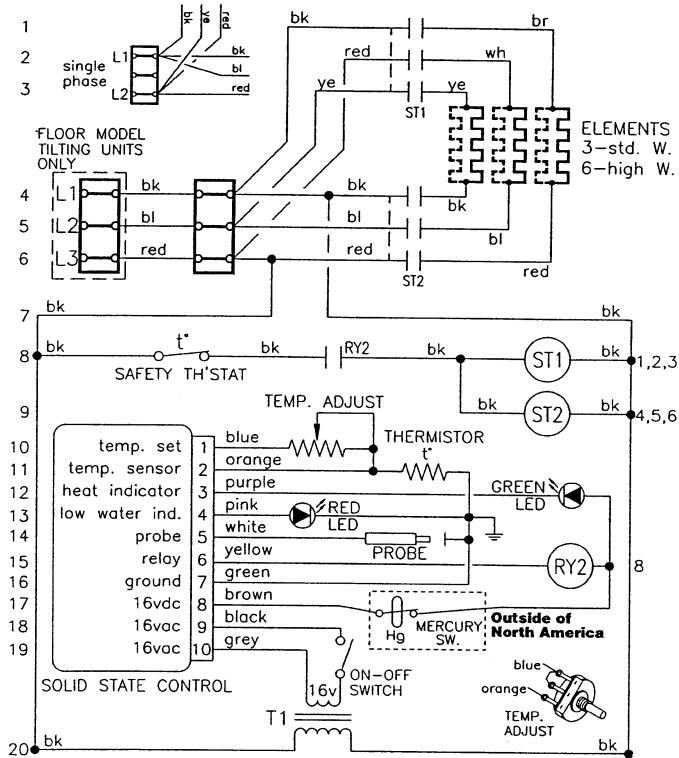
Single Phase Only



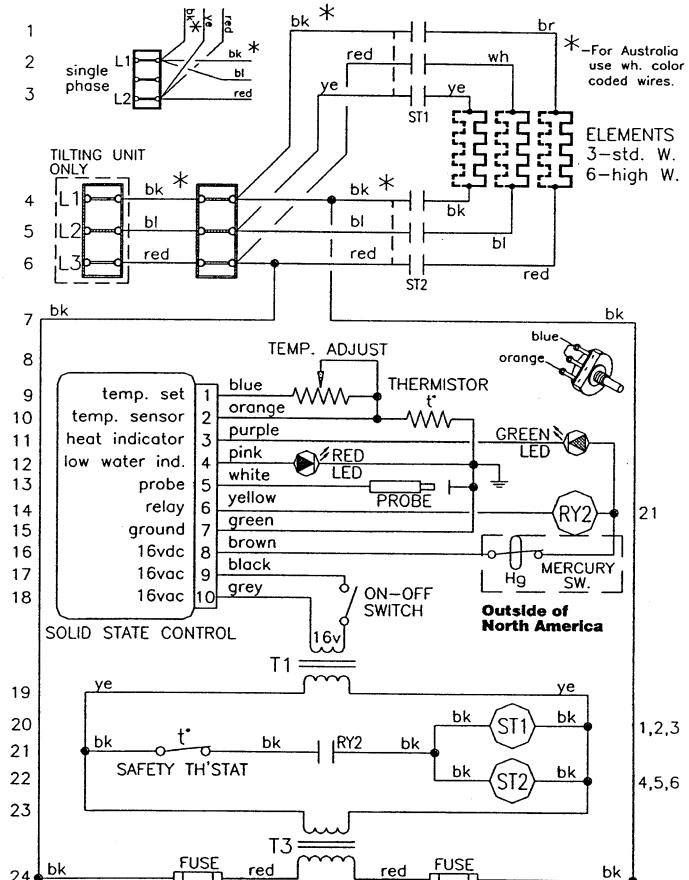
WIRING DIAGRAM

6-20 Gallon

200-240v



380-600v



OPERATING THE KETTLE

DO NOT LEAN ON OR PLACE OBJECTS ON KETTLE LIP. SERIOUS INJURY COULD RESULT IF KETTLE TIPPED OVER, SPILLING HOT CONTENTS.

1. Before turning kettle on, read the Vacuum/Pressure Gauge (4). The gauges needle should be in the green zone. If the needle is in the "VENT AIR" zone, refer to the Kettle Venting Instructions (page 19). Any air that may be present will increase cooking times. Once heated, the kettle's normal maximum operating pressure is approximately 10-12 psi, while cooking a water base product.
2. Ensure that the electrical service to the kettle is turned on at the fused disconnect switch.

Temperature Control Setting	Approximate Product Temperature	
	°F	°C
1. (Min.)	130	54
2.	145	63
3.	160	71
4.	170	77
5.	185	85
6.	195	91
7.	210	99
8.	230	110
9.	245	118
10. (Max.)	260	127

NOTE: Certain combinations of ingredients will result in temperature variations

Temperature Range Chart

3. Preheat the kettle by turning the ON/OFF Switch/Solid State Temperature Control (1) to the desired temperature setting (see above "Temperature Range Chart"). The Heat Indicator Light (Green) (2) will remain lit, indicating the burner is lit, until the temperature setting is reached. When the green light goes off, the heaters are off, and preheating is complete.

NOTE: When cooking egg and milk products, the kettle should not be preheated, as products of this nature adhere to hot cooking surfaces. These types of food should be placed in the kettle before heating is begun.

4. Place food product into the kettle. The Heat Indicator Light (Green) (2) will cycle on and off indicating the elements are cycling on and off to maintain the set temperature.



NOTE: Do not fill kettle above recommended level marked on outside of kettle.

NOTE: The Low Water Indicator Light (Red) (3) should not be lit during kettle operation. This light indicates that the elements have been automatically shut off by the kettle's safety circuit. It is normal for the red light to come on when the kettle is in a tilted position. However, the kettle cannot be operated when the red light remains lit while the kettle is in the upright position. This indicates a low water condition, and water must be added to the reservoir. Refer to Reservoir Fill Procedures on page 19 of this manual for details.

5. When cooking is completed place ON/OFF Switch/Solid State Temperature Control (1) to the "OFF" position.
6. Pour the contents of the kettle into an appropriate container by tilting the kettle forward. Care should be taken to pour slowly enough to avoid splashing off the product.

NOTE: As with cleaning food soil from any cookware, an important part of kettle cleaning is to prevent food from drying on. For this reason, cleaning should be completed immediately after cooked foods are removed. Refer to the Cleaning Instructions (page 6) for detailed kettle washing procedures.

APPROXIMATE BOILING TIMES

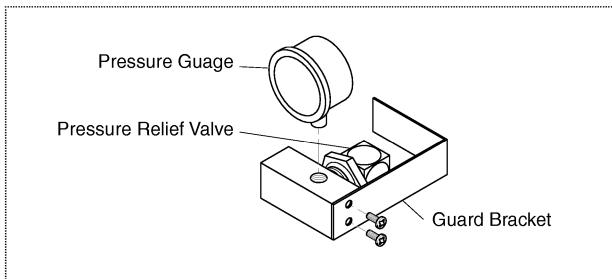
Gals.	Ltrs.	Times in Minutes					
		Standard Wattage			High Wattage*		
		208V	240V	480V	208V	240V	480V
25	95	60	45	60	40	30	30
40	150	60	50	75	40	30	30
60	225	100	75	75	50	40	40
80	300	130	100	100	65	50	50
100	375	160	120	120	80	60	60

*High Wattage is only available with 3 phase units.

The accompanying chart shows approximate times required for electric kettles of various capacities to boil water. The ON/OFF Switch/Solid State Temperature Control (1) must be set at "10" (Max.) throughout the heatup period. Water will boil about 1/3 faster if the kettle is filled only to the outer steam jacket's welded seam, resulting in a kettle filled to 2/3 capacity.

CALIBRATING PROCEDURE

1. Insure the unit has a vacuum before you begin calibrating procedures. If unit requires venting refer to Kettle Venting Instructions on page 19 of this manual.
2. Turn kettle ON and set temperature dial to 10 (Max.).
3. Allow the unit to cycle twice.
4. Check temperature of the inner kettle surface with a digital surface thermometer.
5. Temperature should be between 260° F and 265° F.
6. Using a screw driver adjust temperature by turning the potentiometer on the black box. Turn very little. Turn clockwise to INCREASES and counter-clockwise to DECREASE temperature.
7. Allow the unit to cycle twice.
8. Check temperature of the inner kettle surface with a digital surface thermometer.
9. Repeat steps 4 through 8 until unit is calibrated.



Pressure Relief Valve/Gauge Assembly Drawing

PRESSURE RELIEF VALVE PERIODIC TESTING PROCEDURE

WARNING: IMPROPER REFILLING OF KETTLE JACKET WILL RESULT IN IRREVERSIBLE DAMAGE TO UNIT.

Most insurance agencies require periodic testing of pressure relief valves used on pressure vessels. This procedure will allow you to safely and quickly test your kettle's pressure relief valve. We recommend this test be performed twice a year.

NOTE: The following instruction is intended for use by qualified service personnel.

WARNING: Kettle surface will be hot and steam will be released during testing. Take necessary precautions including the use of gloves and eye protection to prevent personal injury.

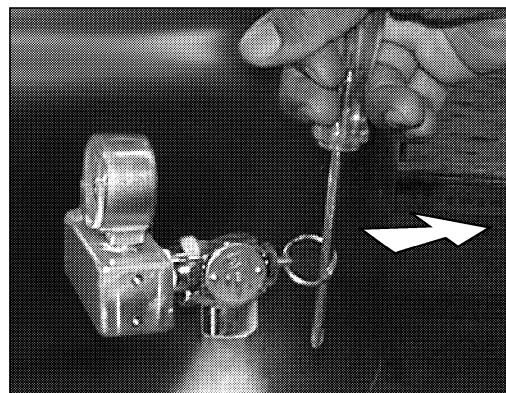


DANGER: PRESSURE RELIEF VALVE WILL EXHAUST HIGH TEMPERATURE STEAM. CONTACT WITH SKIN COULD RESULT IN SERIOUS BURNS. KEEP FACE, HANDS AND BODY CLEAR OF DISCHARGE.



DANGER: WORKING ON MACHINES WITH POWER COULD RESULT IN SEVERE ELECTRICAL SHOCK.

1. Remove guard bracket from pressure relief valve/gauge assembly.
2. With the kettle empty, turn unit ON and set temperature control to 10 (Max.). Allow the kettle to heat until the unit cycles off.
3. Switch unit OFF and disconnect main power at fused disconnect switch.



4. Stand to the side of the pressure relief valve discharge tube and pull valve open for a maximum of one second. Repeat test three to four times. Each time the mechanism should move freely and be accompanied by a rapid escape of steam.
5. Replace guard bracket from pressure relief valve/gauge assembly.

If valve appears to be sticking replace pressure relief valve.

If foreign material is discharged then drain kettle and replace pressure relief valve.

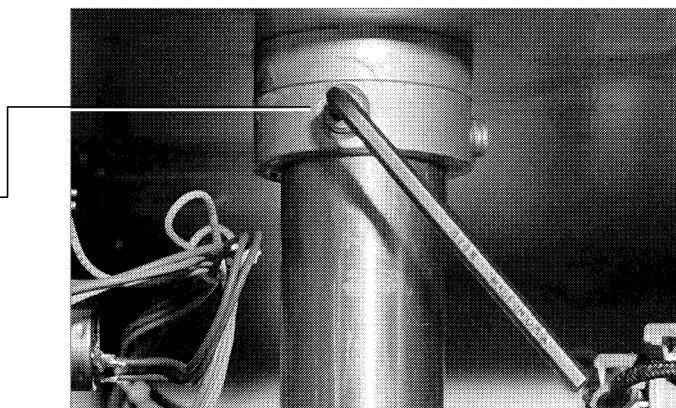
See Reservoir Fill Procedure (page 19) for full instructions on the correct method for refilling kettle jacket.

WARNING: Improper refilling of kettle jacket will result in irreversible damage to unit.

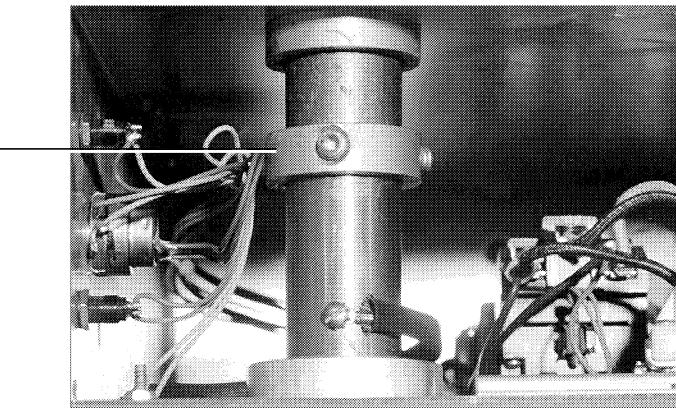
NOTE: Rust inhibitor is purchased locally. Read directions and do not exceed manufacturer's recommendation (excessive rust inhibitor can also cause solidification).

BEARING LUBRICATING PROCEDURE

1. Remove console cover.

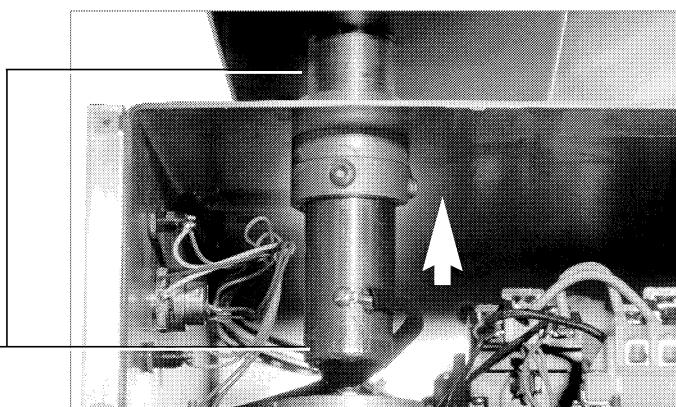
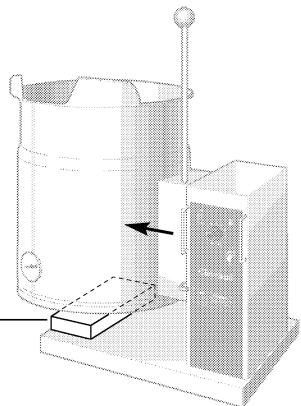


2. Loosen two Allen screws on locking ring.

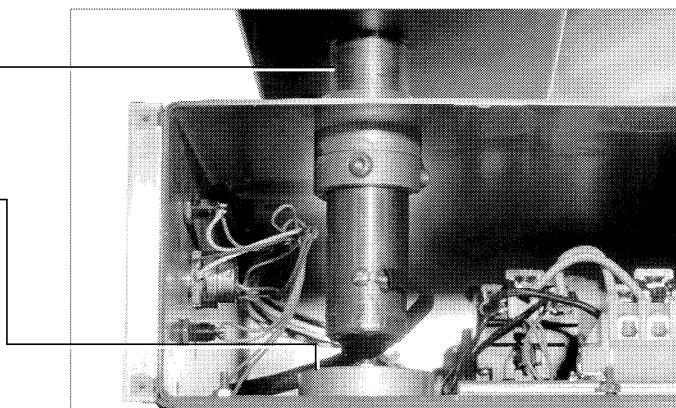


3. Pull locking ring to center of trunnion.

4. Pull kettle two inches away from console and rest on support block.



5. Clean newly exposed sections of trunnion.



6. Grease trunnion between kettle and console.

7. Repack outer needle bearing.

8. Push kettle back in place.

10. Reinstall trunnion and lock collar.

11. Replace console cover.

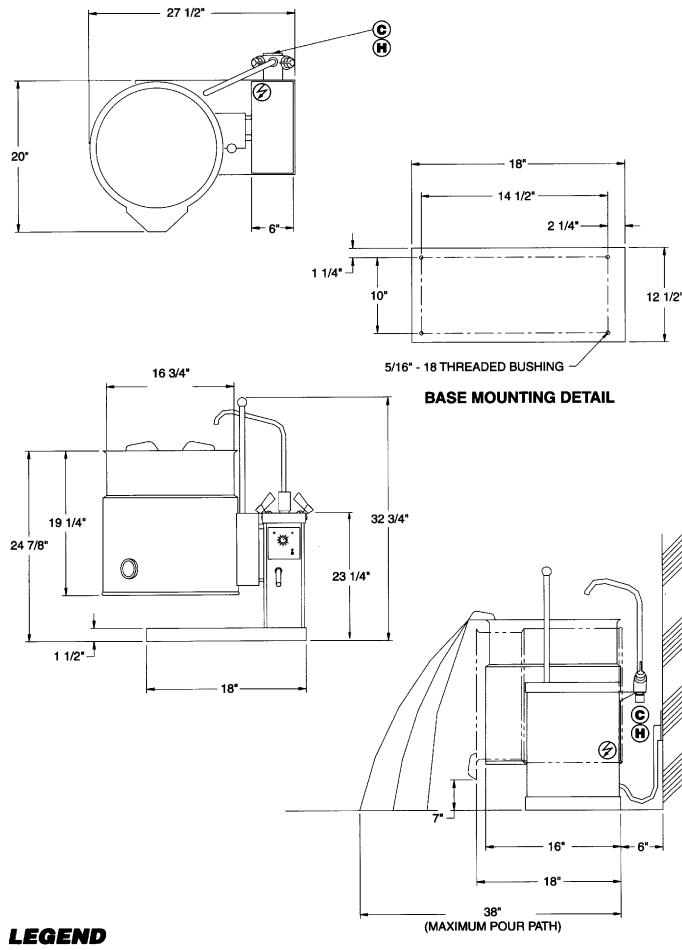


Steam Jacketed Kettles

TABLE TYPE, ELECTRIC

SELF-CONTAINED with GEARBOX
12 GALLON (45 LITERS)
2/3 STEAM JACKETED, TILTING
"SPLASH PROOF SERIES"

KEL-12-TGB INSTALLATION REQUIREMENTS



MODELS: KET-12-TGB

ITEM NUMBER _____

JOB NAME / NUMBER _____



SHORT FORM SPECIFICATION

Shall be CLEVELAND, Electric Kettle, Table Type, self contained, tilting, Model KET-12-TGB; 12 gallons, __Kw, __volt, __Hz, __-phase, 3 wire and single phase, 2 wire. 2/3 Steam Jacketed, Type 304 Stainless Steel kettle and supports. Jacket rated at 50 psi with Safety Valve. Complete with "Splash-Proof" Solid State Water Level, Temperature and Safety Low Water Power Cut-Off, including L.E.D. Indicators. Gear Box. Optional Lift-Off Cover.

LEGEND

⚡ ELECTRICAL SUPPLY C COLD WATER H HOT WATER

SPECIFICATIONS

ELECTRICAL NOTES:

1. VOLTAGES AVAILABLE: 100-600 VOLTS
2. STANDARD AND HIGH WATTAGE MODELS ARE AVAILABLE

CLEARANCES:

RIGHT - 0 LEFT - 0 BACK - 6'

SHIPPING WEIGHT:

190 lbs.

NOTES

UNIT SHOWN WITH OPTIONAL COUPLE PANTRY FAUCET (DPK AND CORD AND PLUG).

WARNING: TO PREVENT INJURY KETTLE MUST BE BOLTED TO THE TABLE.

Cleveland Range reserves right of design improvement or modification, as warranted.

Cleveland Range Inc.

Ph: 1-216-481-4900 Fx: 1-216-481-3782

1333 East 179th St., Cleveland, Ohio, U.S.A. 44110

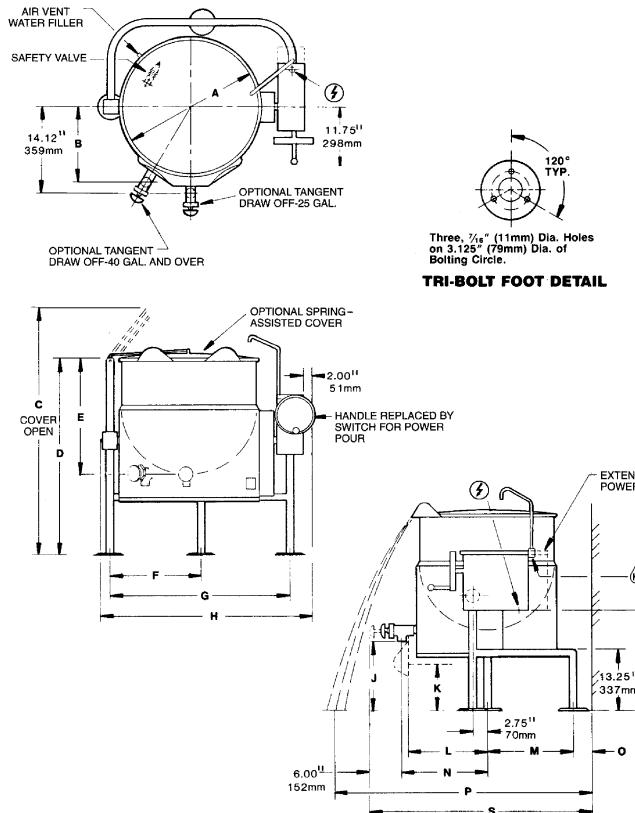
Visit our Web Site at www.clevelandrange.com



Steam Jacketed Kettles

TRI-LEG, ELECTRIC

SELF-CONTAINED
25, 40, 60 or 80 GALLONS
(100, 150, 225 or 300 LITERS)
2/3 STEAM JACKETED
TILTING



MODELS: KEL-25-T KEL-80-T
 KEL-40-T KEL-100-T
 KEL-60-T

ITEM NUMBER _____

JOB NAME / NUMBER _____



Shown with optional Spring-assisted Cover and 2" Tangent Draw-Off Valve

SHORT FORM SPECIFICATION

Shall be CLEVELAND, Electric Kettle, Tri-leg mounted, self-contained, tilting, Model KEL - ____ - T; ____ gallons, 2/3 Steam Jacketed. Type 304 Stainless Steel Kettle and Supports. 50 psi Steam Jacket Rating; 50 psi Safety Valve; Jacket factory charged with Distilled Water, Corrosion Inhibitor and Antifreeze; with combination Pressure/Vacuum Jacket Gauge. Solid State Temperature and Safety Control System in plug-in Module.

GALS.	LITERS	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R	S	
25	100	IN mm	21.00 533	N/A	60.00 1524	37.50 953	20.50 521	14.38 365	28.50 724	36.19 919	14.50 368	12.75 324	11.62 368	14.50 356	14.00 356	2.75 70	42.75 1086	21.10 536	37.25 946
40	150	IN mm	26.00 660	14.25 362	66.75 1695	39.50 1003	22.50 572	16.81 427	33.62 854	41.19 1046	13.50 343	10.25 260	16.25 413	17.50 445	16.50 419	2.50 64	50.00 1270	20.30 516	42.50 1079
60	225	IN mm	29.50 749	15.88 403	75.25 1911	45.00 1143	26.00 660	18.60 472	37.21 945	44.69 1135	14.50 286	11.25 286	19.00 483	19.00 483	18.25 464	2.50 64	52.00 1321	23.10 587	45.75 1162
80	300	IN mm	33.00 838	17.38 441	81.00 2057	48.00 1219	28.00 711	20.31 516	40.62 1032	48.19 1224	15.50 394	11.50 292	20.00 508	21.50 546	20.00 508	2.50 64	56.00 1422	25.10 638	50.00 1270

WATER

5/8" O.D. copper tube or
1/2" N.P.T. pipe.

When ordered with optional faucet.

ELECTRIC												CLEARANCE									
ELECTRICAL SUPPLY-STANDARD WATTAGE												HIGH WATTAGE									
		208 V			240 V			220/380 V			480 V			208 V		240V		220/380V		480V	
GALS.	LITERS	KW	AMPS 1PH 3PH	KW	AMPS 1PH 3PH	KW	AMPS 1PH 3PH	KW	AMPS 1PH 3PH	KW	AMPS 1PH 3PH	KW	AMPS 1PH 3PH	KW	AMPS 1PH 3PH	KW	AMPS 1PH 3PH	KW	AMPS 1PH 3PH		
25	100	9.8	47.3	27.3	13.0	54.5	31.5	10.9	16.5	9.8	11.8	14.8	41.0	19.6	47.3	16.4	24.8	19.6	23.6		
40	150	14.8	70.9	41.0	19.6	81.7	47.3	16.4	24.8	13.1	15.8	24.6	69.0	32.7	78.8	27.3	41.4	33.0	40.0		
60	225	14.8	70.9	41.0	19.6	81.7	47.3	16.4	24.8	19.6	23.6	29.5	82.0	39.2	94.5	32.8	49.6	39.2	47.2		
80	300	14.8	70.9	41.0	19.6	81.7	47.3	16.4	24.8	19.6	23.6	29.5	82.0	39.2	94.5	32.8	49.6	39.2	47.2		

Cleveland Range reserves right of design improvement or modification, as warranted.

Cleveland Range Inc.

Ph: 1-216-481-4900

Fx: 1-216-481-3782

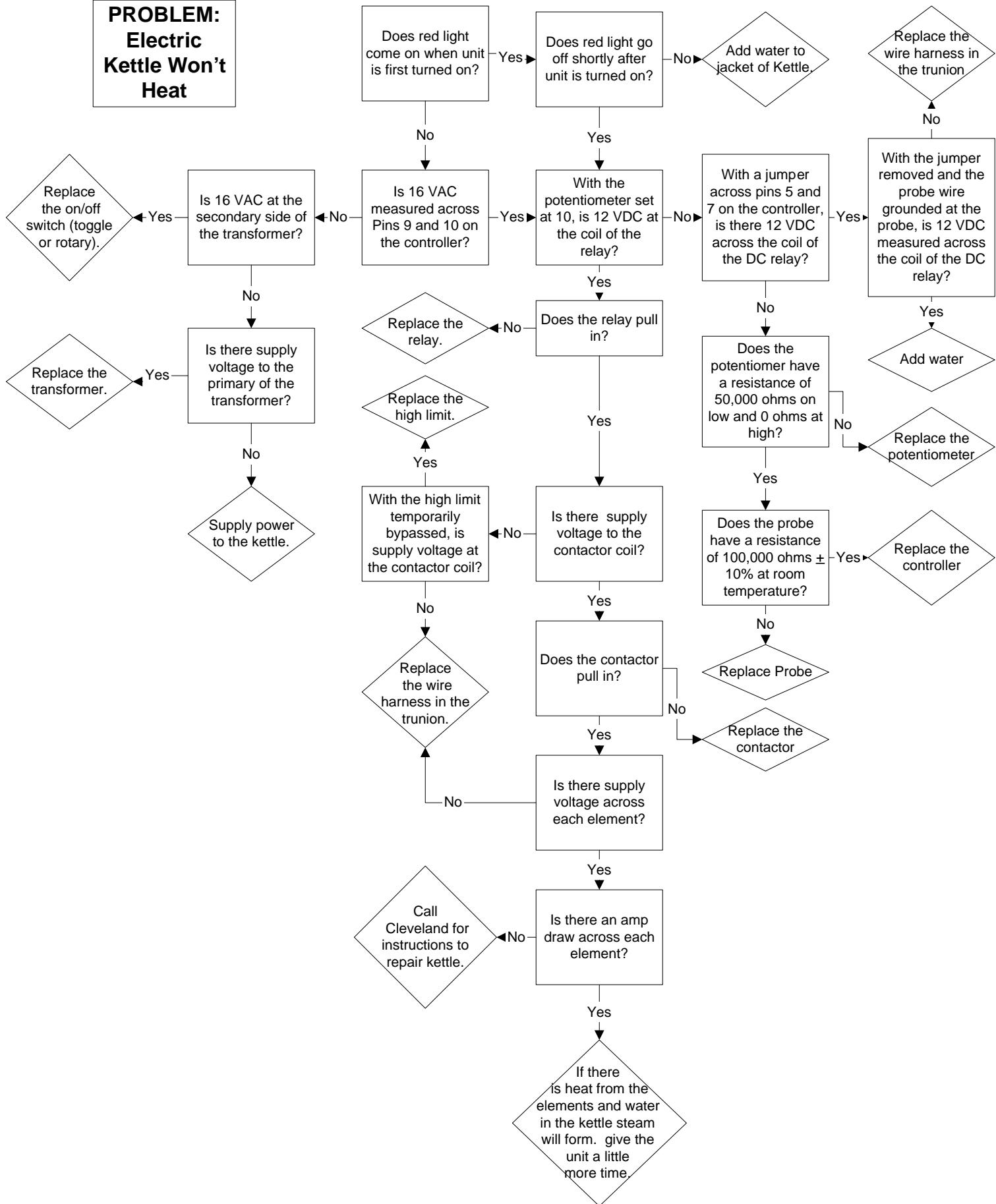
1333 East 179th St., Cleveland, Ohio, U.S.A. 44110

Visit our Web Site at www.clevelandrange.com

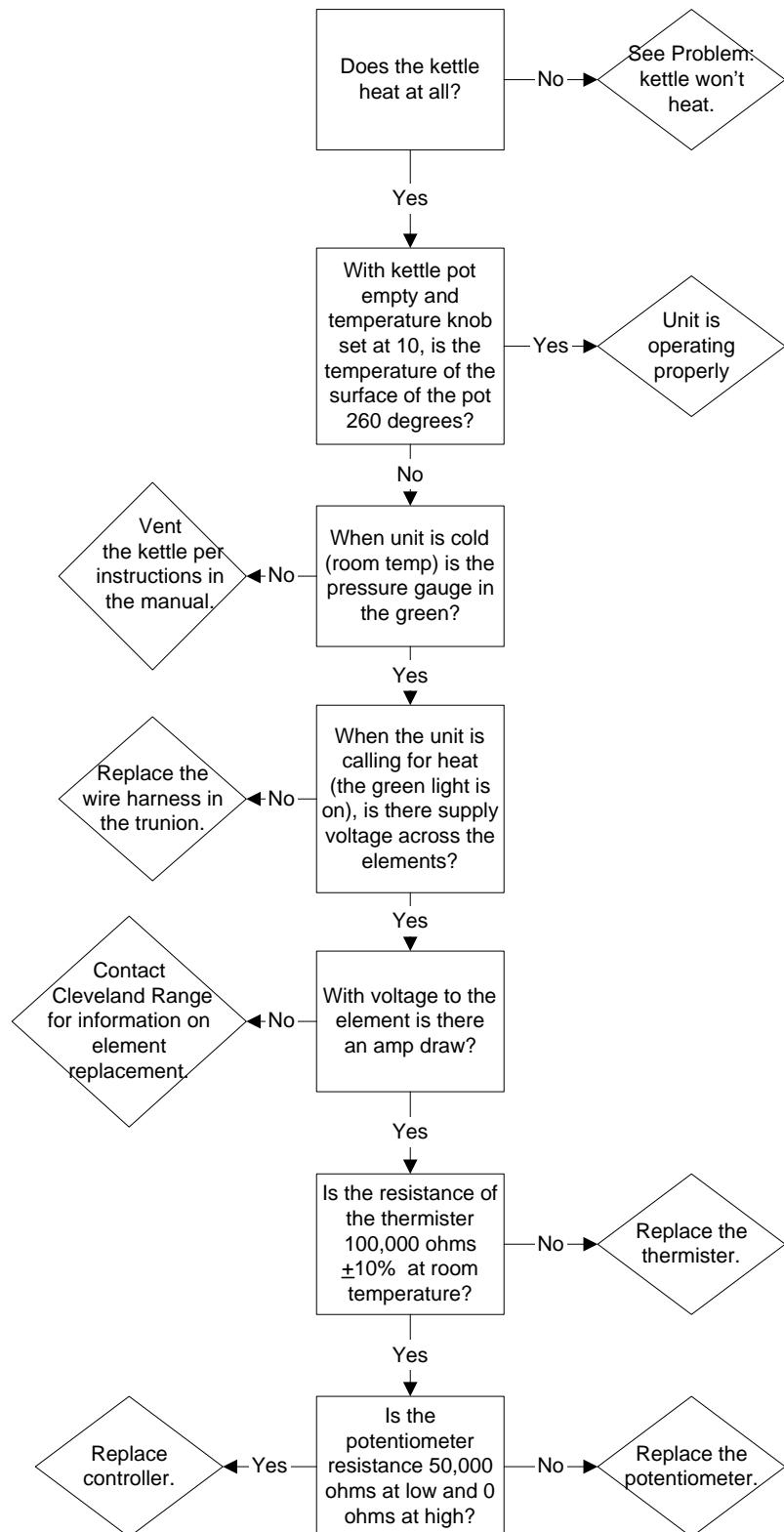
CLEVELAND RANGE KEL SEQUENCE OF OPERATIONS

1. To turn the unit on, turn the switch to the on position.
 - Power is sent to primary side of the 120vac/16vac transformer.
 - Power is sent to the normally closed high limit.
 - From the high limit power is sent to the normally open contacts of the 12VDC relay.
2. From the secondary of the transformer 16VAC is sent to the controller.
 - Power is sent to the red LED (low water indicator light) from terminal 4 of the controller.
 - If the water probe is grounded through water the LED will go off.
 - If the water probe is not grounded the LED will remain on and the unit will not heat.
 - If the resistance of the thermistor is higher than the setting of the potentiometer(the unit is calling for heat) then 16VDC is sent to the coil of the relay and the green LED (heat indicator light)
 - The 12VDC relay will close until the unit reaches temperature
3. With the contacts of the relay closed, power is sent to the coil of the contactor(s).
 - The contactor(s) close sending the supply voltage to the element(s).
 - The elements will heat causing the water to boil and steam to be generated.
4. The kettle will heat (build pressure) until the controller is satisfied by the thermistor at the setting of the potentiometer.
 - The controller will then turn off the heat circuit until the temperature of the kettle is below the setting.
 - When the temperature drops below the setting the controller will send 12 VDC to the relay and the heat circuit will be energized again.
5. To turn the unit off, place the switch in the off position.
 - Power will be removed from the controller and the heat circuit will de-energize.

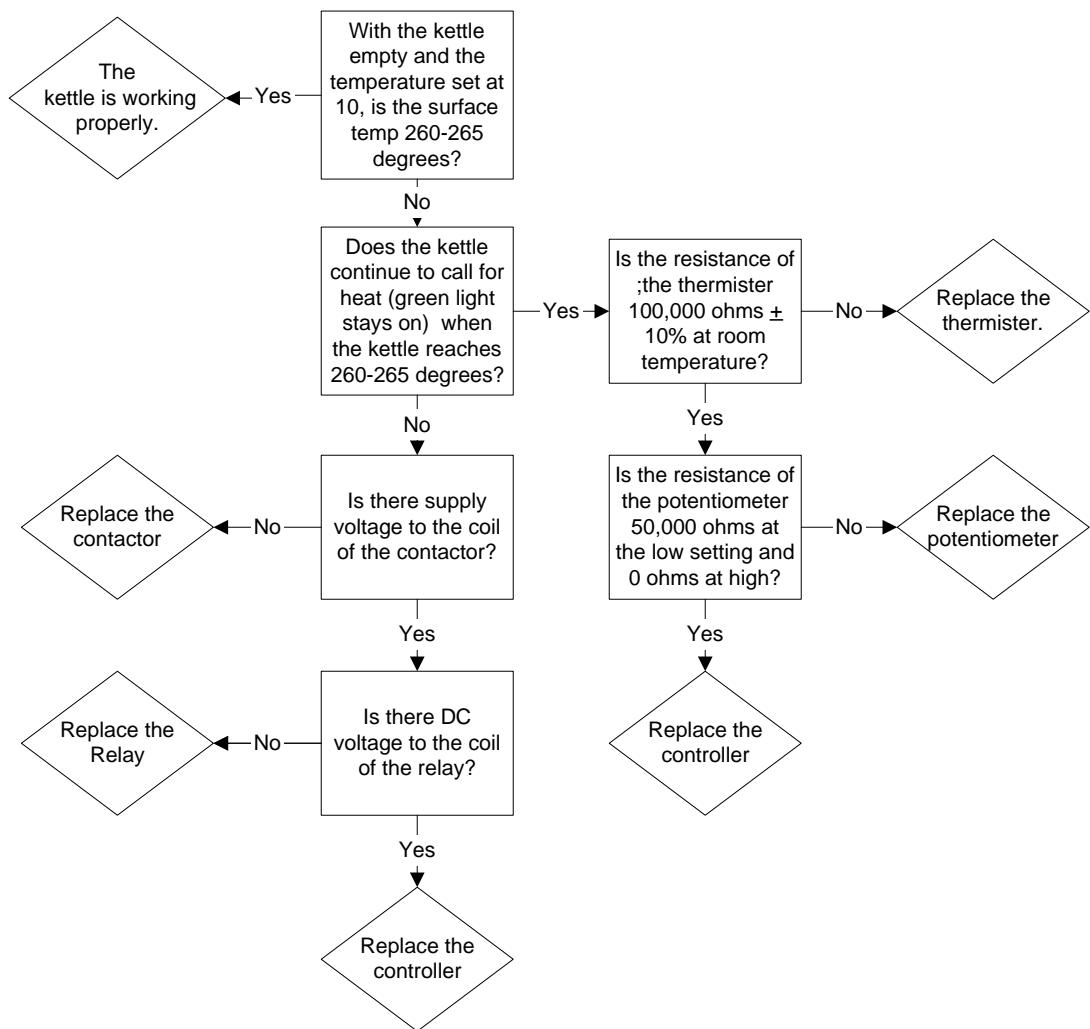
PROBLEM:
**Electric
Kettle Won't
Heat**



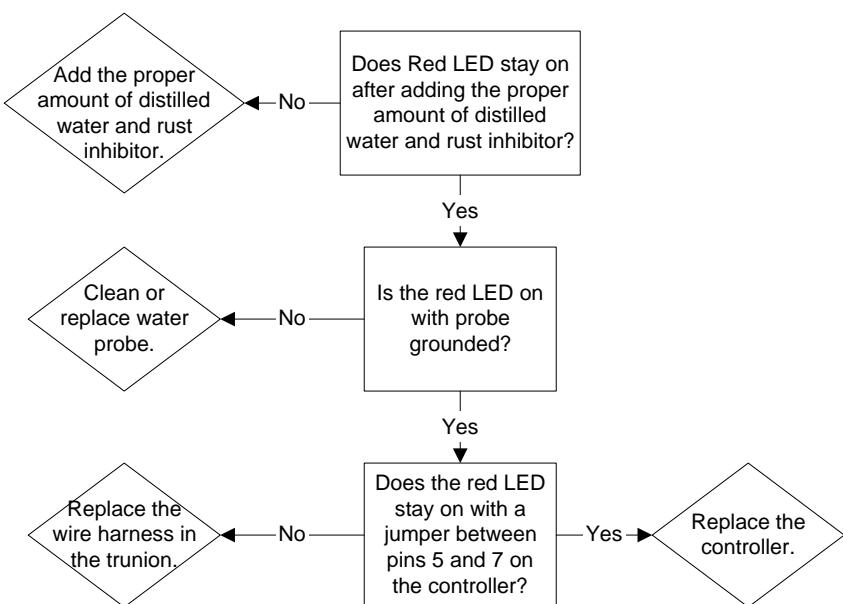
PROBLEM:
Electric
Kettle Not
Hot Enough



PROBLEM:
**Electric
Kettle Gets
Too Hot**



PROBLEM: Red Add Water LED Stays On




 ELECTRIC KETTLE
 ELEMENT TEST SHEET

Date: _____ Model #: _____ Serial #: _____

Customer: _____ Service Company: _____

Volts: _____ Phase: _____

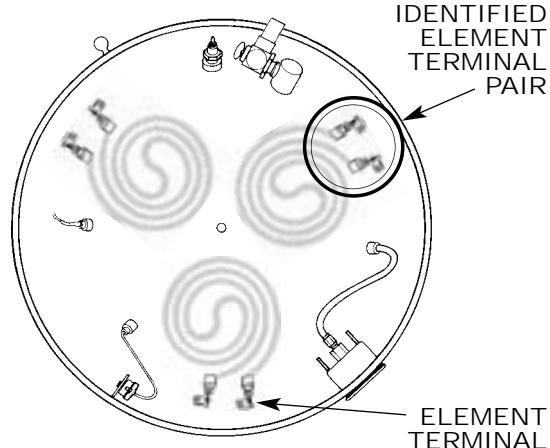
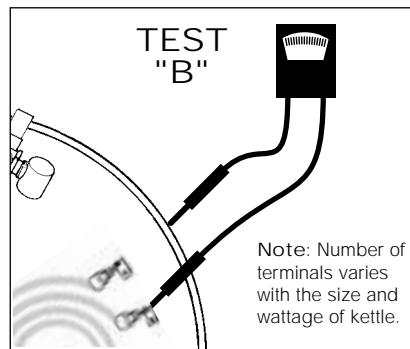
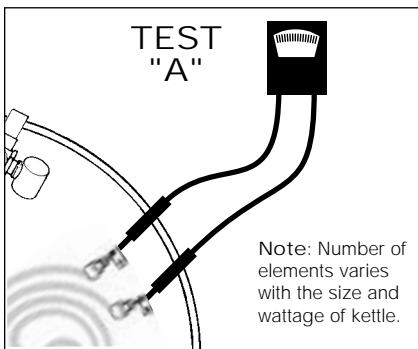
THIS IS A MANDATORY FORM.

Once completed, forward this sheet with request for repair.
 You will then be granted Return Authorization.

1. Disconnect power at circuit breaker.
2. Secure kettle in tilted position. Remove bottom cover.
3. Kettles may have 1, 3 or 6 elements.
 Each element has two terminals. The element terminal pairs can be identified by the wire colour coding. Locate and mark the element terminal pairs.
4. Disconnect wires from element terminals being careful to prevent excessive bending of element terminal pin.

Wire Colour Coding

PAIR(s) #1, 4 ... Red/Brown
PAIR(s) #2, 5 ... Yellow/Black
PAIR(s) #3, 6 ... White/Blue


5. Tests


With an OHM meter, measure the resistance across all the pairs of element terminals and record results in boxes below.

Measure resistance between the kettle body (ground) and each element terminal. Record results in boxes below.

Yes (resistance is greater than 1 mega ohm)
 X No (resistance is less than 1 mega ohm)

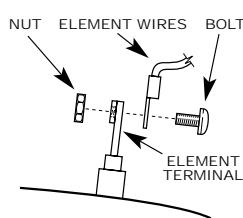
1	2	3
4	5	6

1	2	3	4	5	6
7	8	9	10	11	12

6. Results.

You probably have faulty elements if:

A/ In TEST "A", the resistance is not between 8-140 ohms.
 B/ In TEST "A", elements have substantially different ohm readings.
 C/ In TEST "B", you have recorded any X's.
 7. If no elements test faulty, reconnect element wires to terminals as shown using only the original stainless steel nuts and bolts. If necessary remove any corrosion. Tighten firmly to prevent arcing. Replace bottom cover.

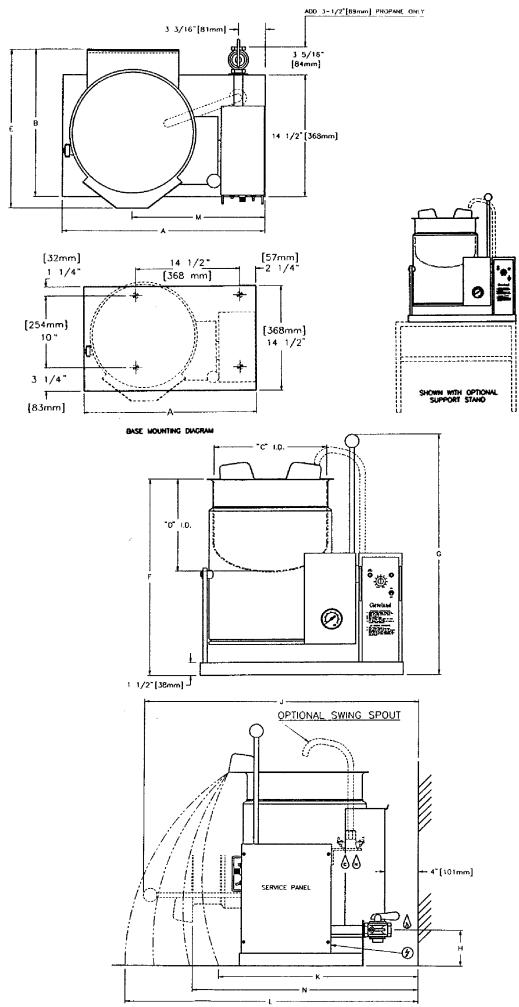




Steam Jacketed Kettles

TABLE TOP, GAS

6 OR 12 GALLONS (23 OR 45 LITERS)
2/3 STEAM JACKETED, TILTING
“SPLASH PROOF SERIES”



MODELS: KGT- 6-T
 KGT-12-T

ITEM NUMBER _____

JOB NAME / NUMBER _____



SHORT FORM SPECIFICATION

Shall be CLEVELAND, gas kettle, Table Type, self-contained, tilting, Model KGT- ____ -T; ____ gallons, natural or LP gas, 2/3 steam jacketed, type 304 Stainless Steel and supports. Jacket rated at 50 psi with Safety Valve. Complete with solid state water level, temperature, and safety low water power cut off, including LED indicators. Option lift off cover.

KETTLE SIZE GALS. LITERS		A	B	C	D	E	F	G	H	J	K	L	M	N
6 23	INCHES mm	24 610	19 $\frac{1}{4}$ 490	13 $\frac{1}{8}$ 340	11 279	18 $\frac{1}{8}$ 476	23 $\frac{1}{8}$ 594	28 $\frac{1}{8}$ 730	4 $\frac{1}{4}$ 108	32 $\frac{1}{2}$ 826	24 610	37 940	15 $\frac{1}{4}$ 400	27 $\frac{1}{4}$ 692
12 46	INCHES mm	27 686	20 $\frac{1}{8}$ 518	16 $\frac{1}{4}$ 425	14 $\frac{1}{8}$ 357	23 584	27 686	39 991	5 $\frac{1}{8}$ 149	43 1092	30 762	43 1092	16 $\frac{1}{8}$ 419	31 787

GAS					ELECTRIC		WATER	
NATURAL		PROPANE			B.T.U. RATING			
piping: $\frac{3}{8}$ " NPT.		piping: $\frac{3}{8}$ " NPT.			6 gal.	34,000	$\frac{1}{2}$ " O.D.	RIGHT = 0"
Supply pressure: 4.5" W.C. minimum 14.00" W.C. maximum		Supply pressure: 11.00" W.C. minimum 14.00" W.C. maximum			12 gal.	53,000	Copper Tube	LEFT = 0"
6 ft. [1.8m] cord c/w u-ground plug supplied.								REAR = 4" [102cm]

Manufacturer must be notified if unit will be operated above 2,000 ft. [610m] altitude.

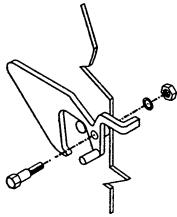
Cleveland Range reserves right of design improvement or modification, as warranted.

Cleveland Range Inc.
Ph: 1-216-481-4900 **Fx:** 1-216-481-3782

1333 East 179th St., Cleveland, Ohio, U.S.A. 44110
 Visit our Web Site at www.clevelandrange.com

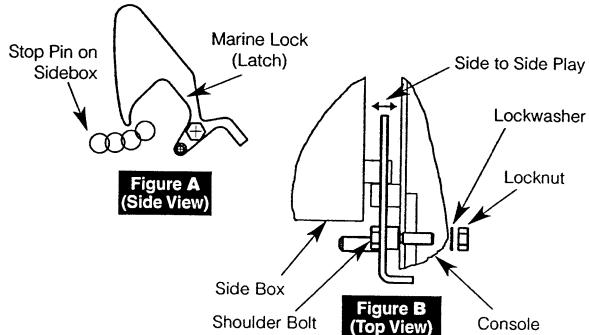
CLEVELAND RANGE KGT-T SEQUENCE OF OPERATIONS

1. To turn the unit on, turn the switch to the on position.
 - Power is sent to primary side of the 120vac/16vac transformer.
 - Power is sent to the normally closed high limit.
 - From the high limit power is sent to the normally open contacts of the 12VDC relay.
2. From the secondary of the transformer 16VAC is sent to the controller.
 - Power is sent to the red LED (low water indicator light) from terminal 4 of the controller.
 - If the water probe is grounded through water the LED will go off.
 - If the water probe is not grounded the LED will remain on and the unit will not heat.
 - If the resistance of the thermistor is higher than the setting of the potentiometer(the unit is calling for heat) then 16VDC is sent to the coil of the relay and the green LED (heat indicator light)
 - The 12VDC relay will close until the unit reaches temperature
3. With the contacts of the relay closed, power is sent to the 24 VAC transformer.
 - The transformer sends 24 VAC to the ignition module.
 - The ignition module will send spark to the igniter and 24 VAC to the gas valve.
 - With 24VAC to the gas valve the valve opens and gas is sent to the burner.
 - Spark and gas together cause ignition.
 - When this happens and the module reads at least 0.7 micro amps DC within 4 seconds, the unit will heat causing the water to boil and steam to be generated.
 - If the module does not see the 0.7 micro-amps in 4 seconds, the module will try again in 15 seconds. It will try 3 times then lock out.
4. The kettle will heat (build pressure) until the controller is satisfied by the thermistor at the setting of the potentiometer.
 - The controller will then turn off the heat circuit until the temperature of the kettle is below the setting.
 - When the temperature drops below the setting the controller will send 12 VDC to the relay and the heat circuit will be energized again.
5. To turn the unit off, place the switch in the off position.
 - Power will be removed from the controller and the heat circuit will de-energize.



MARINE LOCK TESTING PROCEDURE

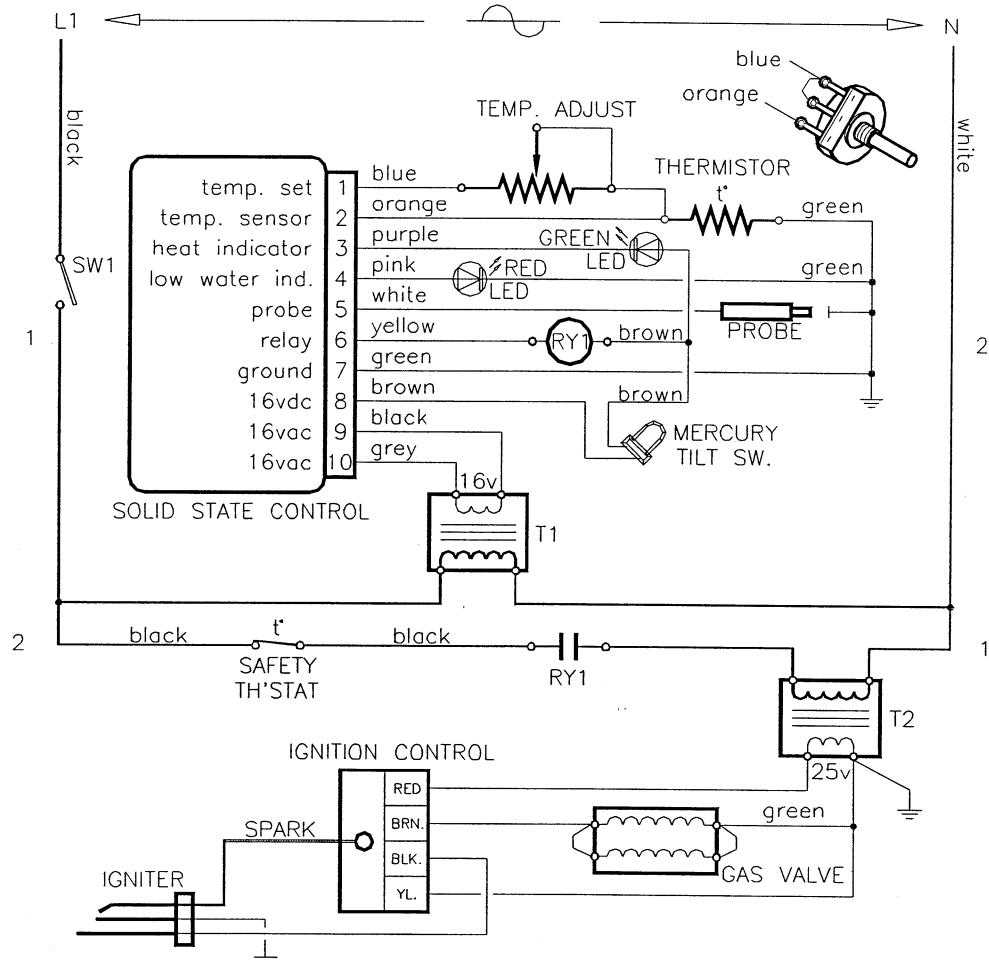
1. Check that lock clears stop pin on side box without rubbing when kettle is tilted (Figure A).
2. Check side to side play. Lock should remain fully over stop pin when pushed to its maximum side to side play (Figure B).
3. Check that the kettle when pushed fully upright moves the lock to a closed position. To check this:
 - A/ Hold the latch firmly in the unlocked position while tilting the kettle back to an upright position.
 - B/ The kettle sidebox will force the lock into a new position.



C/ Hold the lock in this position and try to tilt the kettle forward. The latch should prevent the kettle from tilting.

4. Check shoulder bolt is firmly seated against console body.
5. Check on inside of console box that shoulder bolt locknut is secure.

WIRING DIAGRAM



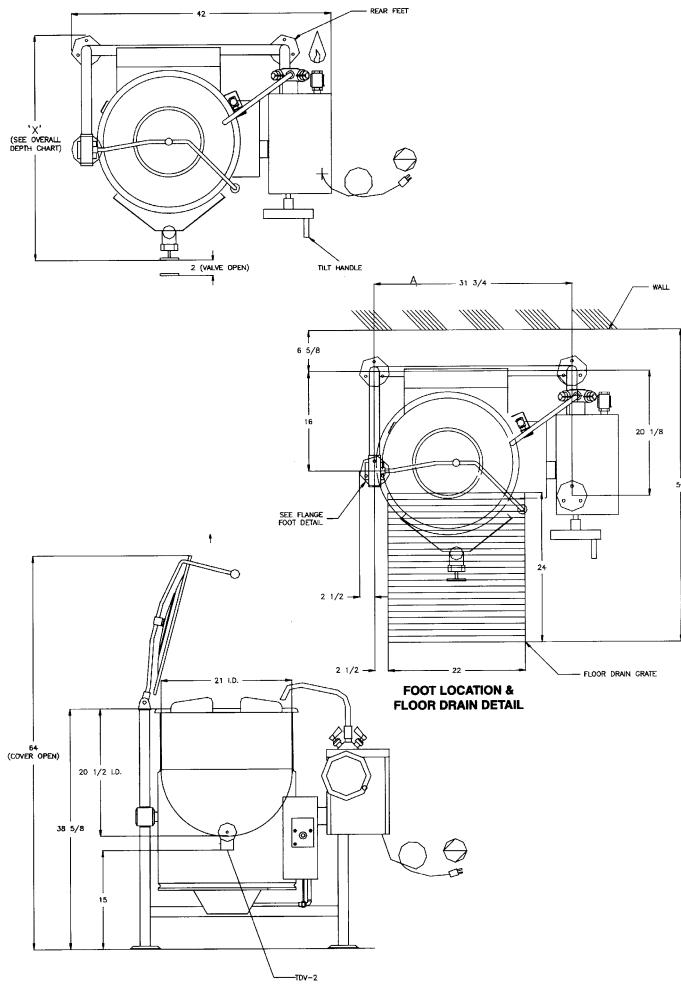


Steam Jacketed Kettles

GAS-FIRED TILTING, LEG-TYPE

2/3 STEAM JACKETED
25 GALLONS (100 LITERS)

KGL-25-T INSTALLATION REQUIREMENTS



UNIT SHOWN WITH OPTIONAL TDV-2, SPRING ASSIST COVER AND DOUBLE PANTRY FAUCET.

NOTES

1. MANUFACTURER MUST BE NOTIFIED IF UNIT WILL BE OPERATING ABOVE 2,000 FOOT ALTITUDE.
2. CONSULT FACTORY FOR MANUFACTURED GAS.
3. ALL VERTICAL DIMENSIONS SHOWN ARE MINIMUM. FEET ARE ADJUSTABLE TO 1 INCH MAXIMUM.
4. UNIT COMES WITH 6' POWER CORD.

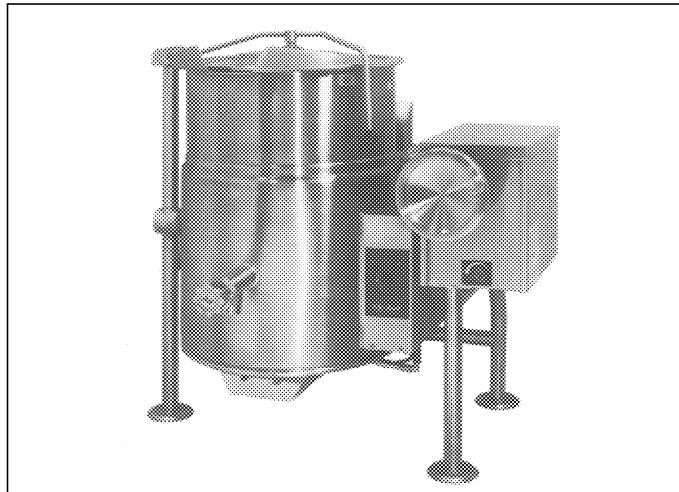
SPECIFICATIONS

MODEL	ELECTRICAL SUPPLY:				GAS SUPPLY: (PIPING 3/4" NPT)				APPROVALS				CLEARANCE:	SHIPPING WEIGHT	
	VOLTS	PHASE	AMPS	FREQ	TYPE	BTU RATING	WATER COLUMN	BTU PER CU. FT.	SUPPLY PRESSURE	AGA	CGA	CE MARK	NSF		
KGL-25-T	120	1	5	60	NAT	90,000	4.2	1000	4" TO 14" W.C.	✓	✓		✓	RIGHT: 0 inches LEFT: 0 inches REAR: 4 inches ✓ ALLOW 12" SPACE MINIMUM ON RIGHT SIDE FOR SERVICE	320 LBS.
	120	1	5	60	LP	90,000	10	2500	4" TO 14" W.C.	✓	✓		✓		
	220	1	3	60	NAT	90,000	4.2	1000	4" TO 14" W.C.						
	220	1	3	60	LP	90,000	10	2500	4" TO 14" W.C.				✓		

MODELS: KGL-25-T

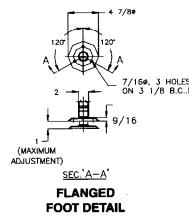
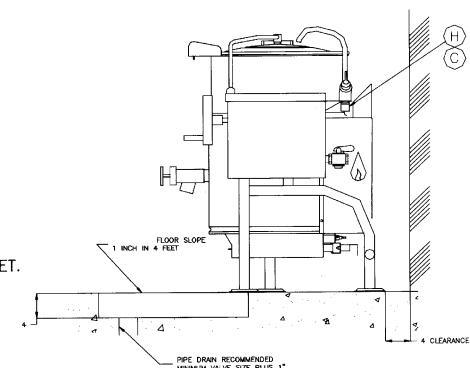
ITEM NUMBER _____

JOB NAME / NUMBER _____



SHORT FORM SPECIFICATION

Shall be CLEVELAND, Gas-Kettle, self-contained, tilting, Model KGL-25-T; 25 gallons, natural or LP gas, 2/3 Steam Jacketed, Type 304 Stainless Steel and supports. Jacket rated at 50psi with Safety Valve. Complete with "Splash-Proof" Solid-State Water Level, Temperature, and Safety Low Water Power Cut-Off, including L.E.D. Indicators for Heat Cycle and Low Water Warning.



Cleveland Range reserves right of design improvement or modification, as warranted.

Cleveland Range Inc.

Ph: 1-216-481-4900 Fx: 1-216-481-3782

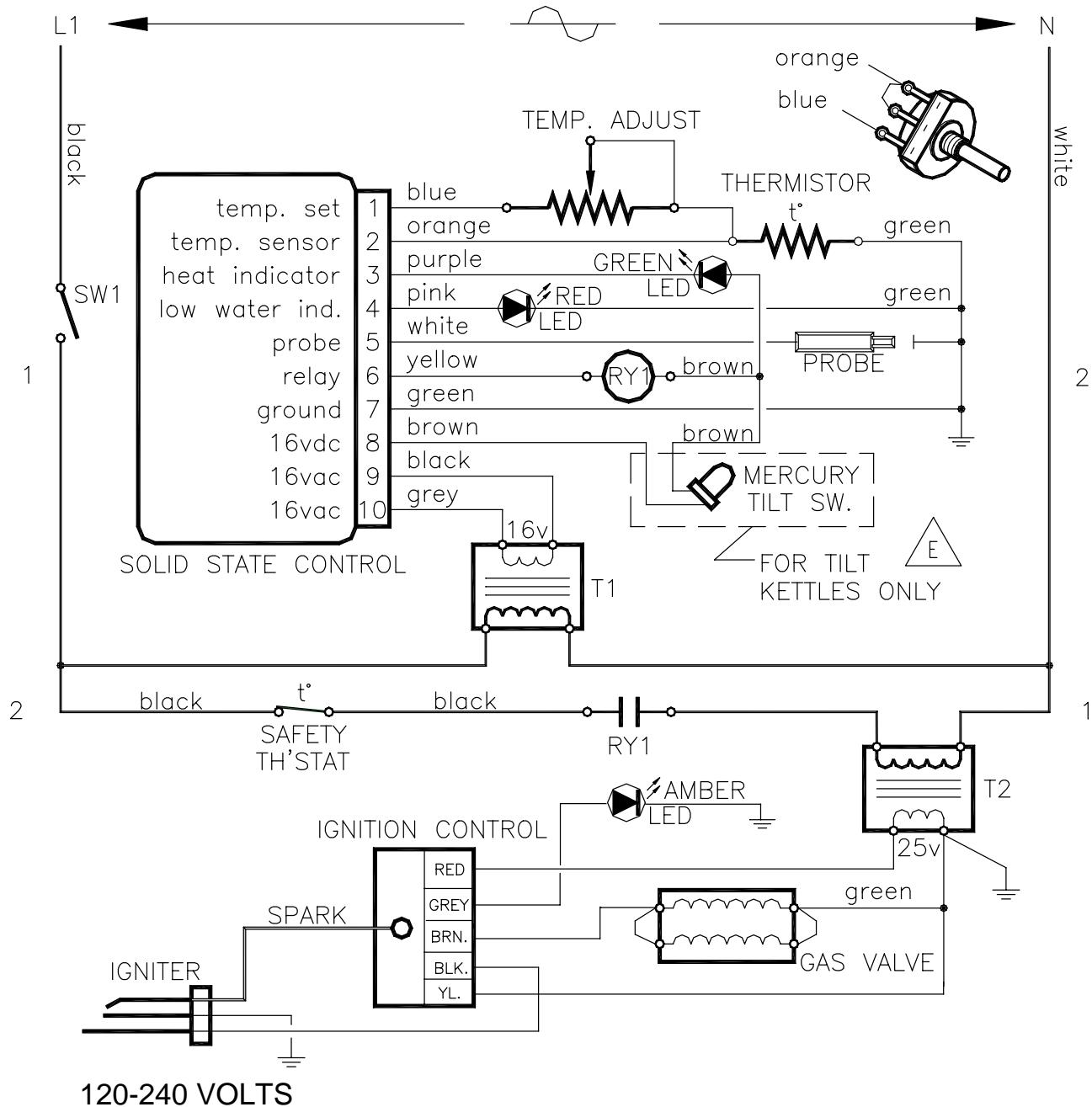
1333 East 179th St., Cleveland, Ohio, U.S.A. 44110

Visit our Web Site at www.clevelandrange.com

CLEVELAND RANGE KGL-25 SEQUENCE OF OPERATIONS

1. To turn the unit on, turn the switch to the on position.
 - Power is sent to primary side of the 120vac/16vac transformer.
 - Power is sent to the normally closed high limit.
 - From the high limit power is sent to the normally open contacts of the 12VDC relay.
2. From the secondary of the transformer 16VAC is sent to the controller.
 - Power is sent to the red LED (low water indicator light) from terminal 4 of the controller.
 - If the water probe is grounded through water the LED will go off.
 - If the water probe is not grounded the LED will remain on and the unit will not heat.
 - If the resistance of the thermistor is higher than the setting of the potentiometer(the unit is calling for heat) then 16VDC is sent to the coil of the relay and the green LED (heat indicator light)
 - The 12VDC relay will close until the unit reaches temperature
3. With the contacts of the relay closed, power is sent to the 24 VAC transformer.
 - The transformer sends 24 VAC to the ignition module.
 - Ignition module sends 24 VAC to the Amber LED
 - The ignition module will send spark to the igniter and 24 VAC to the gas valve.
 - With 24VAC to the gas valve the valve opens and gas is sent to the burner.
 - Spark and gas together cause ignition.
 - When this happens and the module reads at least 0.7 micro amps DC within 4 seconds, the Amber light will go out and the 24 VAC will remain on the gas valve.
 - The unit will heat causing the water to boil and steam to be generated.
 - If the module does not see the 0.7 micro-amps in 4 seconds, the module will try again in 15 seconds. It will try 3 times then lock out.
4. The kettle will heat (build pressure) until the controller is satisfied by the thermistor at the setting of the potentiometer.
 - The controller will then turn off the heat circuit until the temperature of the kettle is below the setting.
 - When the temperature drops below the setting the controller will send 12 VDC to the relay and the heat circuit will be energized again.
5. To turn the unit off, place the switch in the off position.
 - Power will be removed from the controller and the heat circuit will de-energize.

WIRING DIAGRAM



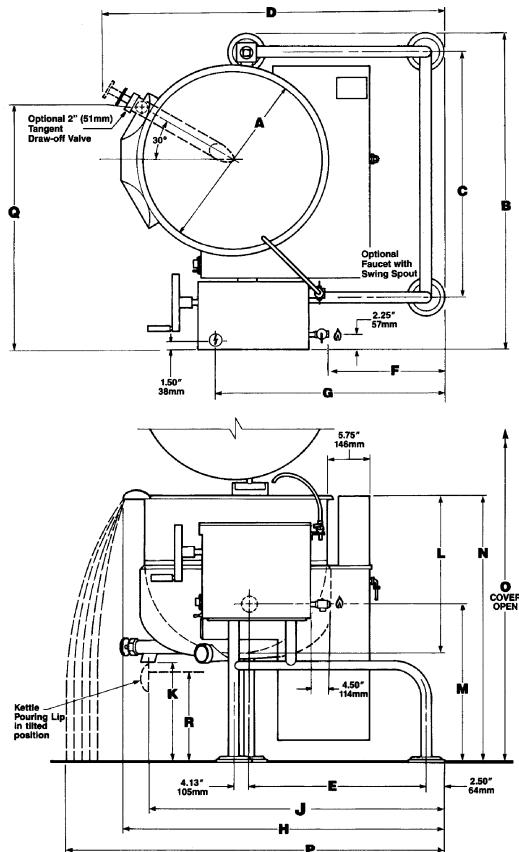


Steam Jacketed Kettles

LEG TYPE, GAS-FIRED

TINGLING

40, 60, OR 80 GALLONS
(150, 225 or 300 LITERS)
2/3 STEAM JACKETED



MODELS: KGL-40-T KGL-80-T
 KGL-60-T

ITEM NUMBER _____

JOB NAME / NUMBER _____



Shown with optional Spring-Assisted Cover
and 2" Tangent Draw-Off Valve

SHORT FORM SPECIFICATION

Shall be CLEVELAND, Gas-Fired Tilting Kettle, Model KGL-
 gallons, 2/3 Steam Jacketed, Power Burner Heating
 System, Insulated Heat Exchanger, 50 psi Steam Jacket Rating.
 Infinite Variable Temperature Control, L.E.D. indicators for Heat
 Cycle and Low Water Warning, Automatic Ignition System.

KETTLE SIZE		INCHES mm	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R
GALS.	LITERS																		
40	151	INCHES mm	26.00 660	45.75 1162	35.75 908	44.50 1130	19.00 483	9.00 229	24.00 610	42.25 1073	38.00 965	15.75 400	22.50 572	23.37 594	40.50 1029	69.75 1772	51.50 1308	35.00 889	9.50 241
60	227	INCHES mm	29.50 749	49.38 1254	39.38 1000	48.00 1219	22.00 559	11.75 298	27.00 686	46.50 1181	41.50 1054	15.50 394	26.00 660	24.50 622	43.50 1105	73.50 1867	68.00 1727	37.00 940	9.00 229
80	303	INCHES mm	33.00 838	53.00 1346	43.00 1092	51.00 1296	25.00 635	14.75 375	30.00 762	51.00 1296	44.50 1130	13.75 349	28.00 711	25.00 635	44.75 1137	82.00 2083	74.50 1892	39.00 991	9.75 248

GAS		ELECTRIC	WATER	CLEARANCE
NATURAL PROPANE		B.T.U. RATING		
Piping: 1/2" N.P.T.	Piping: 1/2" N.P.T.	40 gal. 140,000		
Supply pressure: 4.00" W.C. minimum 14.00" W.C. maximum	Supply pressure: 11.00" W.C. minimum 14.00" W.C. maximum	60 gal. 80 gal. 100 gal.	120V-1 Phase, 60 Hz, 10 amps	
Manufacturer must be notified if unit will be operated above 2,000 ft. altitude.				
			1/2" dia. Soft Copper Tubing (each)	RIGHT = 0" LEFT = 0" REAR = 0" Allow 6.00" space minimum from rear and sides when located near combustible walls.

Cleveland Range reserves right of design improvement or modification, as warranted.

Cleveland Range Inc.

Ph: 1-216-481-4900 Fx: 1-216-481-3782

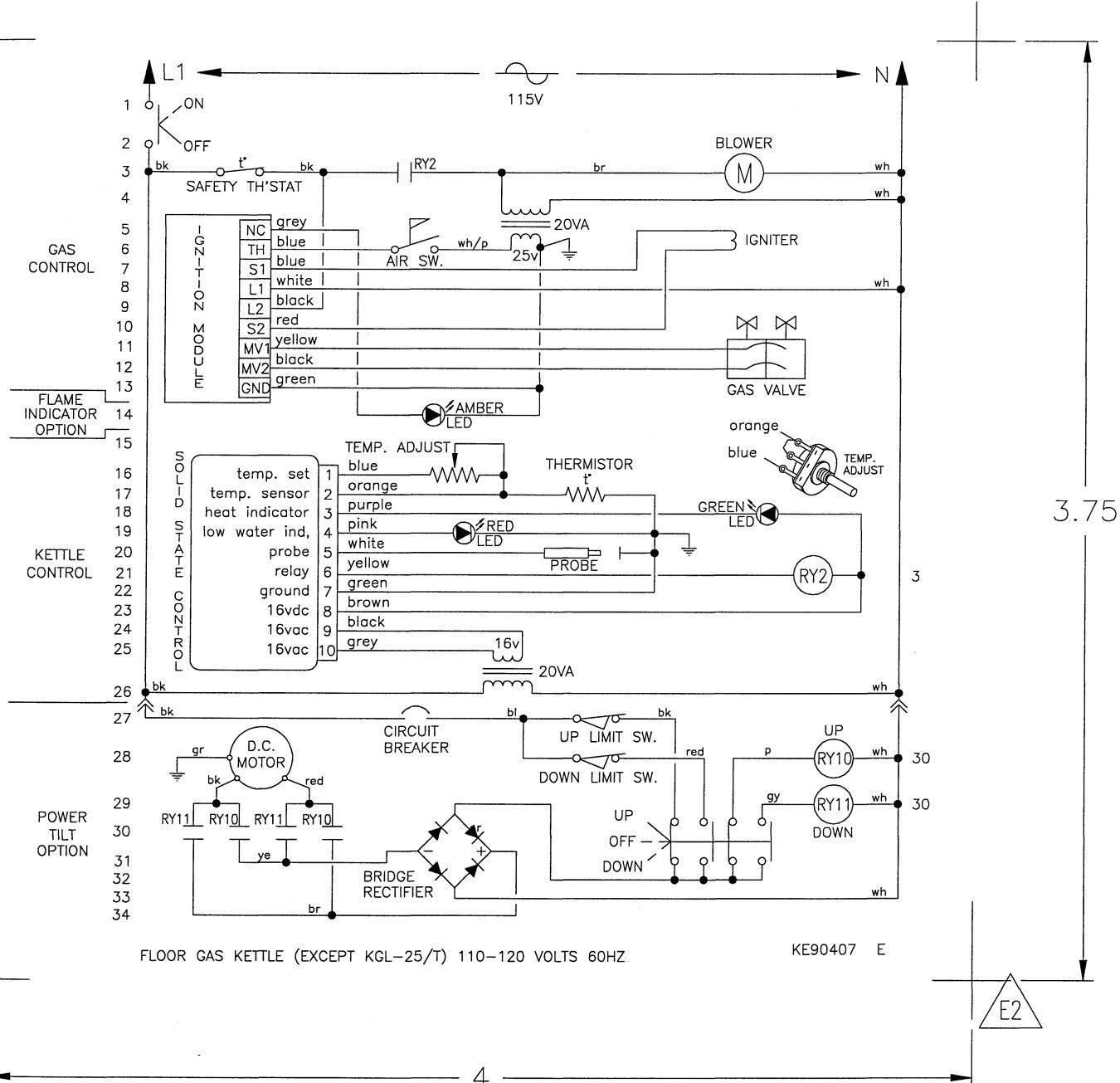
1333 East 179th St., Cleveland, Ohio, U.S.A. 44110

Visit our Web Site at www.clevelandrange.com

CLEVELAND RANGE KGL 40+ SEQUENCE OF OPERATIONS

1. To turn the unit on, turn the switch to the on position.
 - 115 VAC is sent to primary side of the 120vac/16vac transformer.
 - 115 VAC is sent to the normally closed high limit.
 - From the high limit 115 VAC is sent to the normally open contacts of the 12VDC relay and the L1 and L2 terminals of the ignition module.
2. From the secondary of the transformer 16VAC is sent to the controller.
 - 12 VDC is sent to the red LED (low water indicator light) from terminal 4 of the controller.
 - If the water probe is grounded through water the LED will go off.
 - If the water probe is not grounded the LED will remain on and the unit will not heat.
 - If the resistance of the thermistor is higher than the setting of the potentiometer(the unit is calling for heat) then 16VDC is sent to the coil of the relay and the green LED (heat indicator light)
 - The 12VDC relay will close until the unit reaches temperature
3. With the contacts of the relay closed, 120VAC is sent to the blower and primary coil of the 120VAC/24VAC transformer.
 - From the secondary of the 24VAC transformer 24 VAC is sent to the normally open contacts of the air switch.
 - When the air from the blower closes the air switch, 24VAC is sent to the Th terminal of the ignition module.
4. With both 120VAC (at L1 and L2) and 24VAC (at Gnd and Th) to the ignition module then 120VAC will be sent to the surface igniter.
5. After the ignition module has been energized for 24 seconds the module will send 24VAC to the gas valve.
 - The gas will touch the hot igniter and ignite within 4 seconds. If the module does not detect flame in 4 seconds, 24 VAC is removed from the gas valve. Module then locks out.
 - The kettle will build pressure until the controller is satisfied by the thermistor at the setting of the potentiometer.
 - The controller will then turn off the heat circuit until the temperature of the kettle is below the setting.

E1	MATERIAL CHANGES FOR IN HOUSE PRODUCTION	20/04/2001
E2	DIMENTIONAL CHNGES FOR IN HOUSE PRODUCTION	20/04/2001

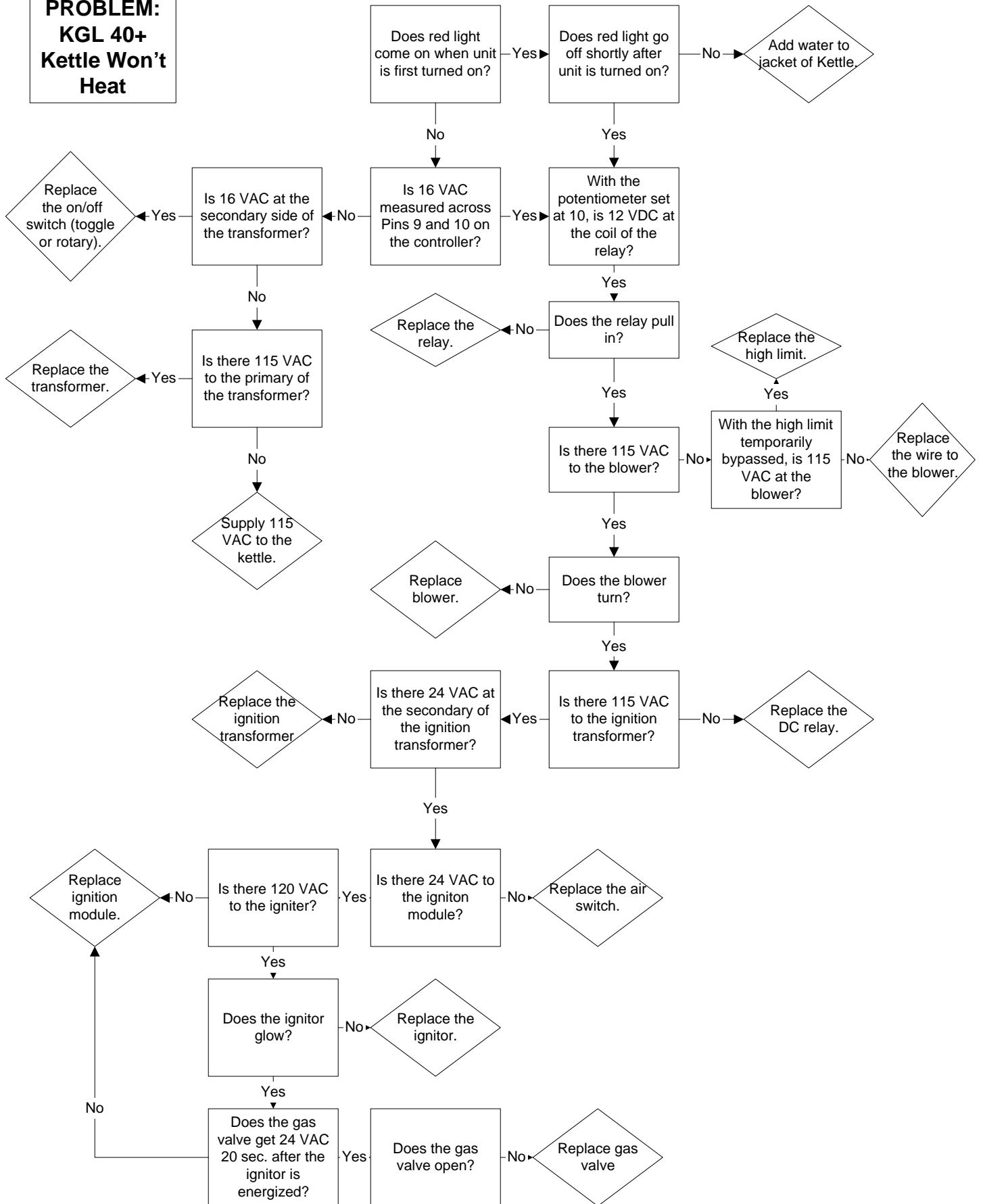


KGL-100, KGL-40-T, KGL-60-T, KGL-80-T

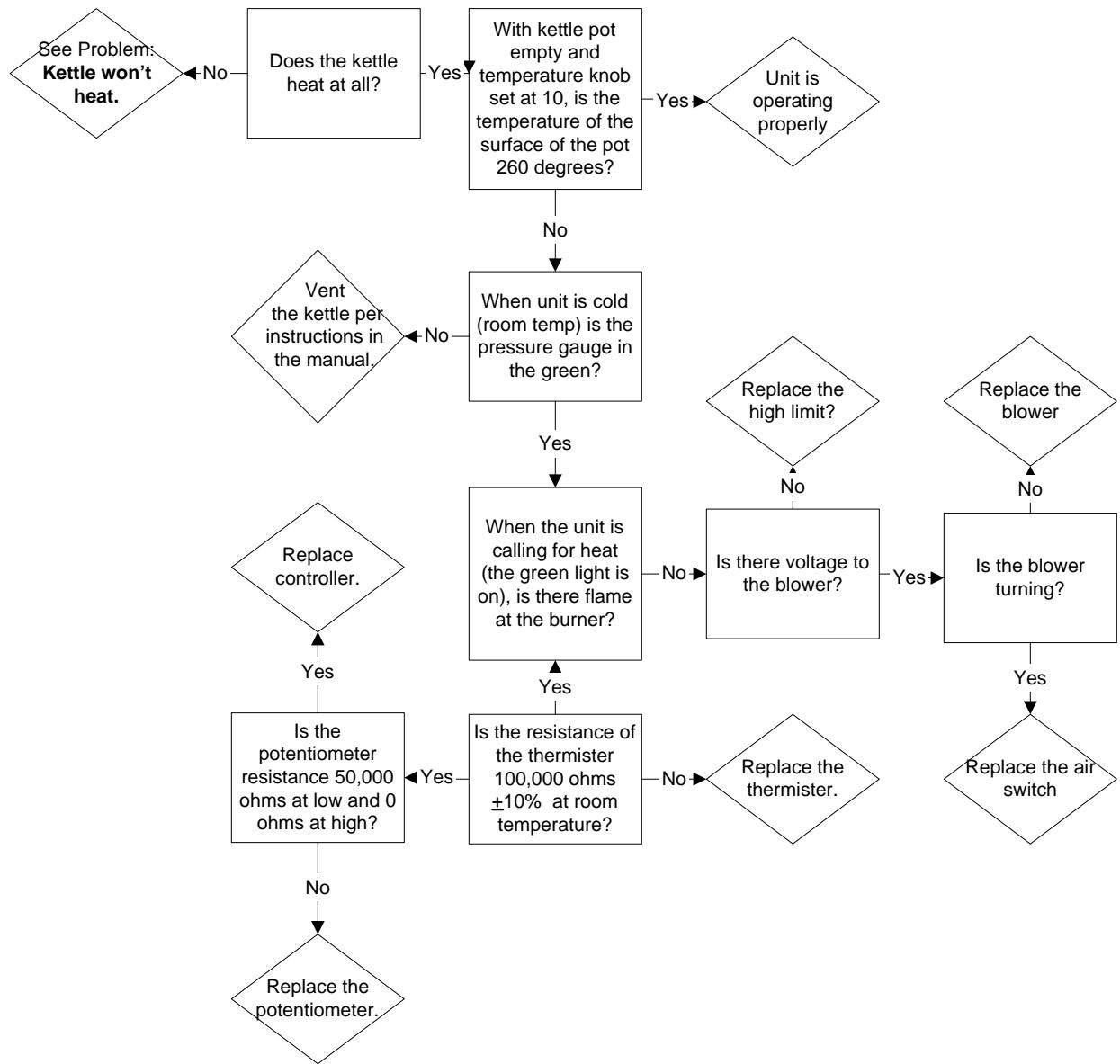
GRAM (KGL / KGL-T)
(115V)

REV. No.	REV. DATE	DESCRIPTION	DRAWING No.	REVISION
E	07/12/2001	3785	KE90407	E
D	01/19/2000	3291		
C	09/24/1999	2717		
B	10/08/1996	ECN 2437		
A	01/03/1991	RELEASED		
			ISSUE DATE	DRAWN BY
			07/12/2001	KYM

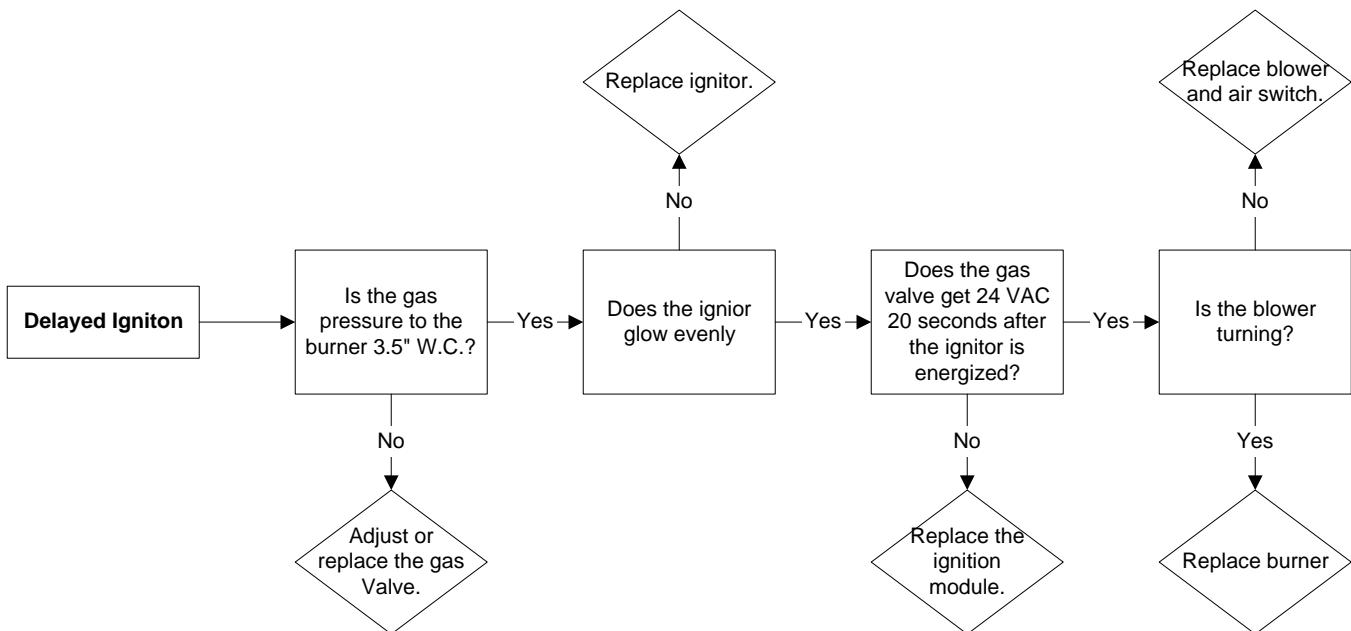
PROBLEM: KGL 40+ Kettle Won't Heat



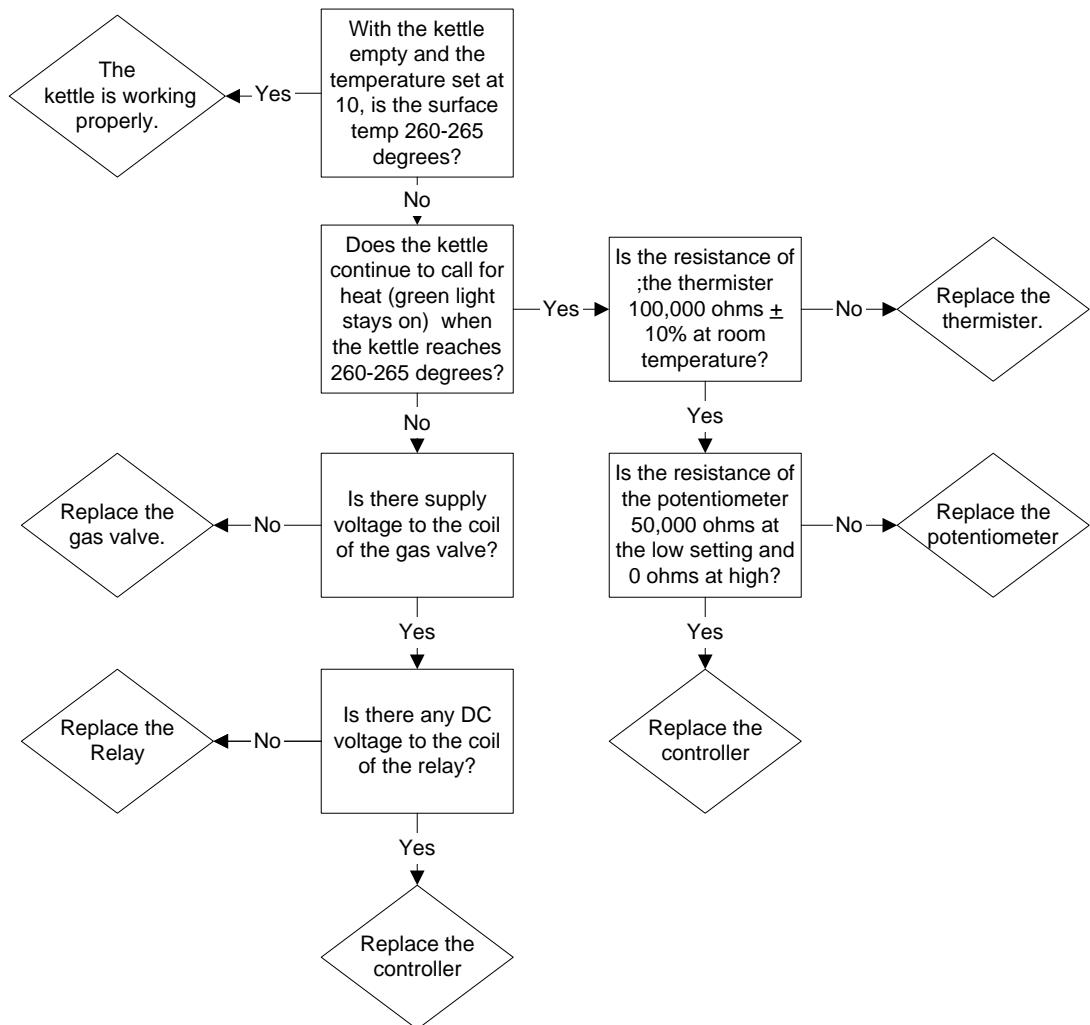
**PROBLEM:
KGL 40+
Kettle Not
Hot Enough**



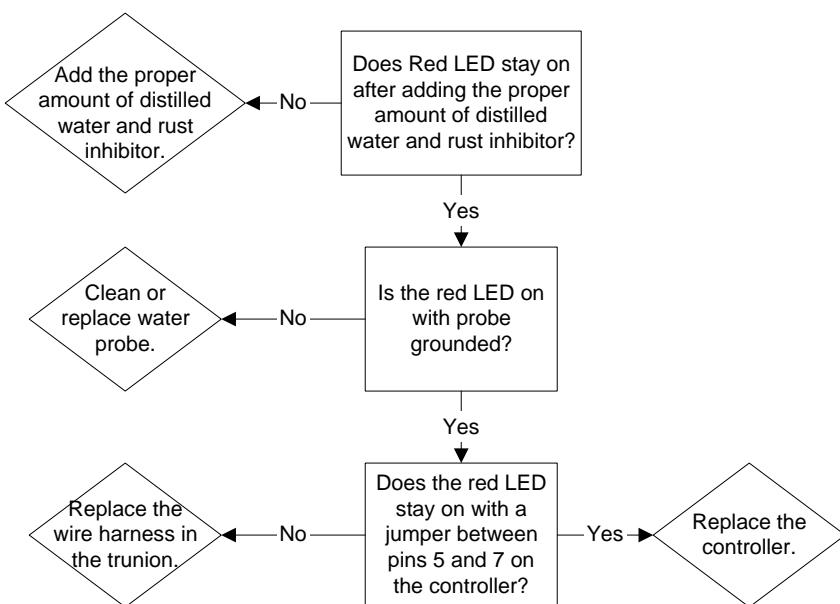
PROBLEM: KGL 40+ Kettle Has Delayed Ignition



PROBLEM:
KGL 40+
Kettle Gets
Too Hot



PROBLEM: Red Add Water LED Stays On



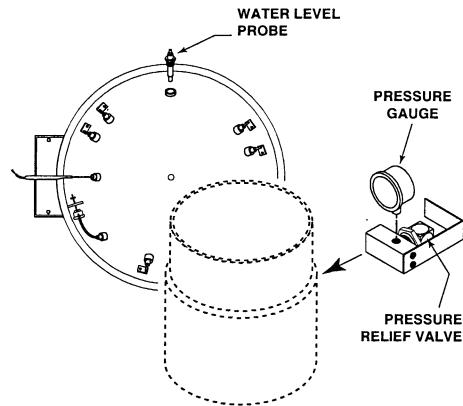
VACUUM LEAK TEST PROCEDURE

If the kettle will not hold vacuum, test for leaks at:

- A.** Water Level Probe (Remove bottom cover).
- B.** Pressure Relief Valve.
- C.** Pressure Gauge.

LEAK TEST PROCEDURE:

1. Heat kettle until unit cycles off.
2. Shut off power to the kettle at the fused disconnect switch.
3. Spread Bubble Type Leak Detector over suspected areas and watch closely for bubbles.
4. Repair areas as required.



REPAIRING LEAKS IN STEAM JACKETED KETTLE FITTINGS

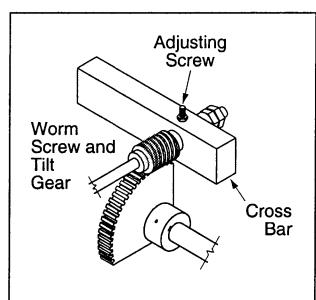
If unit will not hold a vacuum the most likely cause is a leak at one of the fittings.

Often, the easiest way to eliminate a leak is reseal the suspect areas.

1. Water Level Probe	Remove, clean threads, apply teflon thread sealant and reinstall.
2. Pressure Relief Valve	A/ Inspect for signs of leaks. Replace if required. B/ Remove, clean threads, apply teflon thread sealant and reinstall.
3. Pressure Gauge	A/ Inspect face of gauge. If it contains moisture on the inside of face replace. B/ Remove, clean threads, apply teflon thread sealant and reinstall.

LUBRICATION PROCEDURE

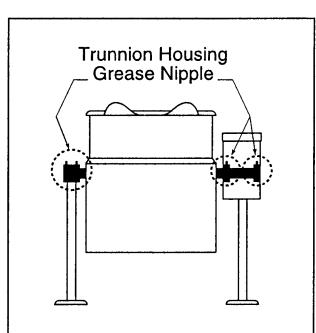
Lubricate the following parts every three months to insure smooth operation and reduce wear.



TRUNNION HOUSING, WORM SCREW AND TILT GEAR

These parts are accessed through the top cover of the console.

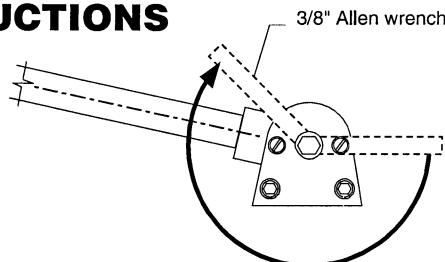
Apply grease to gear teeth. Check for excessive play and adjust with adjusting screw located on top of cross bar.



KETTLE TRUNNIONS

On the left hand side of the kettle there are two grease nipples on the top back portion of the trunnion housing. On the right hand side of the kettle you must remove the console cover to access the two grease nipples.

HINGE ADJUSTMENT INSTRUCTIONS

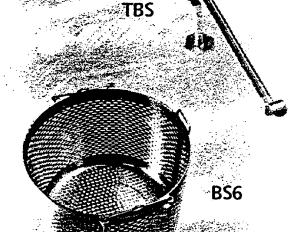
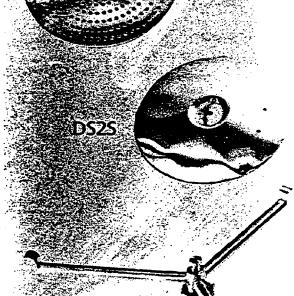
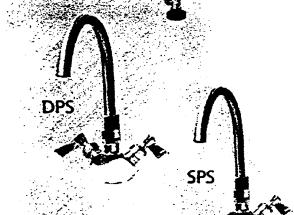
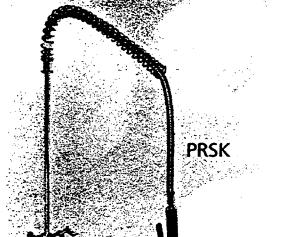
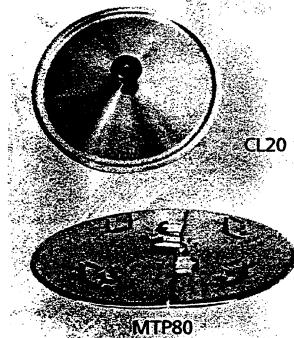


1. Insert 3/8" Allen wrench.
2. Turn clockwise to relieve tension on spring.
3. While tension is released remove one of the two slotted screws.
4. To prevent Allen wrench from springing back abruptly while the second slotted screw is removed, insert a pin (approximately 1/8") in the hole where the first slotted screw was removed from.
5. Remove second slotted screw.
6. While holding Allen wrench remove pin.
7. Turn Allen wrench clockwise to tighten or counter-clockwise to loosen tension to produce desired effect.
8. Re-insert pin in one of the two holes.
9. Tighten one slotted screw in the other hole (it may be necessary to turn Allen wrench slightly to align holes).
10. Remove pin and repeat step number 9 for other slotted screw.

Cleveland Kettle

Steam Jacketed Accessories

Kettles



Model #	Part Number/Description	Price
---------	-------------------------	-------

Lift-Off Covers

CL1	Oyster Kettle, Lift-Off Cover	\$265
CL6	6 Gallon Lift-Off Cover	\$265
CL12	12 Gallon Lift-Off Cover	\$350
CL20	20 Gallon Lift-Off Cover	\$390
CL25	25 Gallon Lift-Off Cover	\$580
CL40	40 Gallon Lift-Off Cover	\$670
CL60	60 Gallon Lift-Off Cover	\$760
CL80	80 Gallon Lift-Off Cover	\$880
CL100	100 Gallon Lift-Off Cover	\$990

Two-Piece Covers Mixer Kettles

MTP12	12 Gallon Two-Piece Cover	\$1,880
MTP20	20 Gallon Two-Piece Cover	\$1,880
MTP40	40 Gallon Two-Piece Cover	\$2,410
MTP60	60 Gallon Two-Piece Cover	\$2,410
MTP80	80 Gallon Two-Piece Cover	\$2,410
MTP100	100 Gallon Two-Piece Cover	\$2,410
MTP125	125 Gallon Two-Piece Cover	\$2,410
MTP150	150 Gallon Two-Piece Cover	\$2,410
MTP200	200 Gallon Two-Piece Cover	P.O.A.

Faucets

SPK	Single Pantry Faucet	\$300
DPK	Double Pantry Faucet	\$330
SKFK	Single Pantry Kettle Filler with 60" Hose (P/N 105978)	\$670
DKFK	Double Pantry Kettle Filler with 60" hose (P/N 105979)	\$860
PRSK	Double Pantry Pre-Rinse Spray Hose (P/N 105980)	\$910
FBKT	Faucet Bracket-Tilting Kettles (P/N KE54159)	\$120

Steam Control Kit

SCK1	Steam Control Kit-Direct Steam Stationary Kettle	\$550
SCK2	Steam Control Kit-Direct Steam Tilting Kettle	\$550
SCK3	Steam Control Kit-Direct Steam Stationary Kettle 200 Gallon and larger	\$550

Price includes: Steam Trap, Condensate Strainer, Check Valve

Drain Strainers & Hooks

SH(*)G	Drain Strainer Hooks-* Specify Gallon Size	\$190
DS2	2" Tangent Draw Off Drain Strainer 3/16" Holes	\$200
DS3	3" Tangent Draw Off Drain Strainer 3/16" Holes	\$200
DSB2	2" Butterfly Valve Drain Strainer 3/16" Holes	\$270
DSB3	3" Butterfly Valve Drain Strainer 3/16" Holes	\$270
MKDS2	2" Mixer Kettle Drain Strainer 1/4" Holes	\$230
MKDS3	3" Mixer Kettle Drain Strainer 1/4" Holes	\$230
"S"	Add suffix "S" for Solid Drain Cover	(Priced the same as above)

Baskets & Basket Systems

BS3	3 Gallon S/S Cooking Basket	\$ 470
BS6	6 Gallon S/S Cooking Basket	\$ 490
BS12	12 Gallon S/S Cooking Basket	\$ 630
TBS25	Tri Basket System- 25 Gallon Kettle (3BS3)	\$1,780
TBS40	Tri Basket System- 40 Gallon Kettle (3BS6)	\$1,780
TBS60	Tri Basket System- 60 Gallon Kettle (3BS6)	\$2,180
TBS80	Tri Basket System- 80 Gallon Kettle (3BS12)	\$2,180
TBS100	Tri Basket System-100 Gallon Kettle (3BS12)	\$2,180

Cleveland Training Notes